Appel, L. K.
1932

Health aspects of how Holyoke high school students divide the day.

BOSTON UNIVERSITY

SCHOOL OF EDUCATION

THESIS

HEALTH ASPECTS OF HOW HOLYOKE HIGH SCHOOL STUDENTS DIVIDE THE SCHOOL DAY

Submitted by

Louis Karl Appel
(B.S. Normal College, American Gymnastic Union,
Indianapolis, Indiana, 1919)

In partial fulfillment of requirements for the
degree of Master of Education.

1932

First Reader: Jesse B. Davis, Professor of Education, Boston University
Second Reader: Mabel C. Bragg, Assistant Professor of Education, Boston University

OUTLINE

LIST OF TABLES

FIGURES

MAPS

FOREWORD

PURPOSE OF THE STUDY

The purpose of this study is to ascertain definite information concerning the health aspects of how Holyoke High School students divide the school day. The study will devote itself to a consideration of the relationship of desirable and undesirable time allotments to school practices and to activities outside of school. It will seek to determine certain facts relative to the adolescent boys and girls, as comparisons of the various grades, 9th, 10th, 11th, 12th, and post graduate, in regard to habits having a definite bearing on health, such as sleep, recreation, and study. It will discuss pupils' likes and dislikes, and point out inclinations which tend to become stronger or to disappear. Furthermore, it will consider, with some detail, those pupils whose health shows need of more stringent health practices,- I refer to pupils who are seriously handicapped by physical disabilities. Finally, it will outline certain procedures which can improve conditions which will make it more possible for pupils to do their best, both in and outside of school.

The study will naturally divide itself into four parts:

1. A consideration of how the high school pupils (morning session), representing the normal session plan, divide their school day.
2. A comparison of afternoon session and morning session pupils.
3. A discussion of what is being done for physically handicapped pupils.
4. Specific recommendations for the improvement of health and health habits as suggested by the findings of this study.

HOLYOKE AND HOLYOKE HIGH SCHOOL

Holyoke, a city of 56,000 inhabitants, is located in the Connecticut Valley. It is essentially an industrial city and as such has a distinct type of citizenship. Holyoke High School normally accomodates 1200 students. On account of the depression, however, the high school enrollment this year has been far in excess of that of normal times, necessitating an afternoon session. There are approximately three hundred students, 9th grade and 10th grade, all pursuing commercial subjects, who are in session from 12.30 to 4.30 p.m. In addition to the courses offered, (1) herewith submitted, pupils are urged to belong to one or more of the following clubs: Natures, travel, art, camp cooking, aviation, stamp and coin, assembly, music, dramatic, photographic, mathematic, glee, band and orchestra, chess, French, German, classical, Round the table, Phi Alpha, and "Q", a social club for junior and senior girls. There are two gymnasiums, one for the girls and one for the boys, and one swimming pool for both sexes. In close proximity there is a large athletic field of six acres, capable of accomodating those pupils who wish to engage in athletics. The high school is centrally located and draws its school population from five junior high schools, situated in various parts of the city, each having reasonably adequate facilities for outdoor sports and play. Inasmuch as the Department of Physical Education has concentrated on athletic activities for the wise use of leisure time, the greater majority of pupils in the senior high school have had the opportunity to attain the desire to engage in wholesome

---

(1) Submitted on next page.

SECOND YEAR

Hours a week	Cr'dits	COLLEGE PREPARATORY
4	4	English
5	5	Latin
5	5	French or German
5	5	Geometry
2	1	Physical Education
1	½	Chorus
5	5	Ancient History
4	2	Art
5	5	European History
5	5	General Physics
2	2	Oral Expression
4	2	Clothing, Foods or Woodworking
4	2	Mechanical Drawing

Hours a week	Cr'dits	TECHNICAL PREPARATORY
4	4	English
5	5	Geometry
5	5	French or German
5	5	General Physics
2	1	Physical Education
1	½	Chorus
5	5	European History
2	2	Oral Expression
4	2	Mechanical Drawing
4	2	Woodworking

Hours a week	Cr'dits	GENERAL
4	4	English
2	1	Physical Education
[illegible]	½	Chorus
2 or 4	1 or 2	Art
5	5	Botany
5	5	Commercial Geography
5	5	European History
5	5	French, German or Spanish
5	5	General Physics
5	5	Geometry
5	5	Latin
4	2	Mechanical Drawing
2	2	Oral Expression
4	2	Clothing
4	2	Foods
4	2	Woodworking
1	½	Glee Club
1	½	Band
1	½	Orchestra
2	2	Speech Correction
2	2	Music Appreciation

THIRD YEAR

Hours a week	Cr'dits	COLLEGE PREPARATORY
4	4	English
5	5	Latin
5	5	French or German
5	5	United States History or Civics
2	1	Physical Education
1	½	Chorus
7	5	Chemistry
4	2	Mechanical Drawing
4	2	Art, Clothing, Foods, or Woodworking

Hours a week	Cr'dits	TECHNICAL PREPARATORY
4	4	English
5	5	French or German
5	5	United States History and Civics
5	5	Review and Solid Geometry
2	1	Physical Education
1	½	Chorus
7	5	Chemistry
4	2	Machine Shop Practice [Afternoons only at the Continuation School]

Hours a week	Cr'dits	GENERAL
4	4	English
5	5	United States History and Civics
2	1	Physical Education
1	½	Chorus
		Electives to make two units from:
2 or 4	1 or 2	Commercial Design
7	5	Chemistry
5	5	Household Economics
4	2	Clothing
4	2	Foods
4	2	Woodworking or Machine Shop Practice
		Any suitable subject on elective lists of previous years

FOURTH YEAR

Hours a week	Cr'dits	COLLEGE PREPARATORY
4	4	English
5	5	Latin
5	5	French or German
5	5	Review Mathematics
2	1	Physical Education
1	½	Chorus
7	5	College Physics
4	2	Typewriting
4	2	Art, Clothing, Foods, or Woodworking

Hours a week	Cr'dits	TECHNICAL PREPARATORY
4	4	English
5	5	French or German
5	5	Advanced Algebra and Trigonometry
7	5	College Physics
2	1	Physical Education
1	½	Chorus
4	2	Typewriting
4	2	Machine Shop Practice [Afternoons only at the Continuation School]

Hours a week	Cr'dits	GENERAL
4	4	English
2	1	Physical Education
1	½	Chorus
		Electives to make three units from:
5	5	Review Mathematics
4	2	Typewriting
1	½	Art Appreciation
2	2	Music Theory
		Any suitable subject on elective lists of previous years

Notes: Clothing, Foods and Drawing are good optional subjects. For other electives see General Course. Work must total to at least 19 hours. Subjects pr nted in heavy type are required. Orchestra and Band may be elected one hour weekly.

Notes: Pupils wishing to offer History in the comprehensive examination should defer the subjects to the fourth year.

Notes: For other electives see General Course. Take complete courses in English and Mathematics. Work must total to at least 19 hours. Subjects printed in heavy type are required.

SECOND YEAR

Hours a week	Cr'dits	HOUSEHOLD ARTS
4	4	English
5	5	Botany or General Physics
4	2	Foods II
4	2	Clothing II
2	1	Art and Design
2	1	Physical Education & Hygiene
5	5	Elective from General Course
1	½	Chorus

Hours a week	Cr'dits	COMMERCIAL
4	4	English
5	5	Commercial Geography
5	5	Elementary Bookkeeping
4	2	Typewriting I
4	1	Penmanship half year if pupil has not earned a Palmer Diploma
2	1	Physical Education
1	½	Chorus
5	5	Algebra
5	5	Botany
5	2½	Business Arithmetic [Half Year]
5	5	European History
5	5	French, German or Spanish
5	5	General Physics
2	2	Oral Expression
4	2	Clothing
4	2	Foods
4	2	Woodworking
4	2	Mechanical Drawing
2 or 4	1 or 2	Commercial Design

THIRD YEAR

Hours a week	Cr'dits	HOUSEHOLD ARTS
4	4	English
5	5	Household Chemistry
5	5	United States History & Civics
4	2	Foods III [Half Year]
4	2	Clothing III [Half Year]
4	2	Costume Design [Half Year]
4	2	Home Decoration [Half Year]
2	1	Physical Education & Hygiene
1	½	Chorus

Hours a week	Cr'dits	STENOGRAPHIC COURSE
4	4	English
5	5	United States History
5	5	Stenography I
4	2	Typewriting II
2	1	Physical Education
1	½	Chorus
7	5	Chemistry
5	5	French, German or Spanish
5	5	Geometry
5	5	Household Economics
5	5	Intermediate or Advanced Bookkeeping
5	2½	Salesmanship [Half Year]
4	2	Clothing
4	2	Foods
2	1	Commercial Design
		Any suitable subject on elective lists of previous years

Hours a week	Cr'dits	BOOKKEEPING COURSE
4	4	English
5	5	United States History and Civics
5	5	Intermediate Bookkeeping
5	2½	Commercial Law [Half Year]
5	2½	Salesmanship [Half Year]
2	1	Physical Education
1	½	Chorus
7	5	Chemistry
5	5	French, German or Spanish
5	5	Geometry
5	5	Household Economics
5	5	Stenography I
4	2	Typewriting II
2	1	Commercial Design
4	2	Clothing
4	2	Foods
		Any suitable subject on elective lists of previous years

FOURTH YEAR

Hours a week	Cr'dits	HOUSEHOLD ARTS
4	4	English
5	5	Household Economics
4	4	Nutrition and Child Welfare
2	1	Physical Education & Hygiene
1	½	Chorus
1	½	Art Appreciation
5	5	Elective from General Course

Hours a week	Cr'dits	STENOGRAPHIC COURSE
4	4	English
5	5	Stenography II
4	2	Typewriting III
5	2½	Commercial Law [Half Year]
5	2½	Elementary Economics [Half Year]
4	2	Office Appliances
2	1	Physical Education
1	½	Chorus
3	3	Advanced Business Arithmetic
7	5	College Physics
2	1	Commercial Design
4	2	Business Organization & Management
5	5	French, German or Spanish
5	5	Intermediate or Advanced Bookkeeping
		Any suitable subject on elective lists of previous years

Hours a week	Cr'dits	BOOKKEEPING COURSE
4	4	English
5	5	Advanced Bookkeeping
5	2½	Elementary Economics [Half Year]
4	2	Business Organization & Management [Half Year]
3	3	Advanced Business Arithmetic
4	2	Office Appliances
2	1	Physical Education
1	½	Chorus
7	5	College Physics
5	5	French, German or Spanish
4	2	Typewriting II or III
2	1	Commercial Design
		Any suitable subject on elective lists of previous years

Notes: For other electives see General Course. Work should total to at least 19 hours. Subjects printed in heavy type must be taken.

Notes: Orchestra and Band may be taken 1 hour weekly each.

Name of Pupil .....

Address .....

I desire to take the following subjects next year, which will be my ..... year in the Senior High School. Before filling in blank spaces read **all** directions on this card.

Make a check mark in space on the left of the course you are taking.

☐ College Preparatory ☐ Technical

☐ Commercial ☐ Household Arts (Girls)

☐ General

SUBJECTS	CORRECTIONS	PERIOD	ROOM	OMIT	REPORT	DIVISION
English ..... Year						
Chorus Singing						
Physical Training						

American History required for a diploma.
Teachers are asked to write "A" or "B" in "Division" column opposite each subject.

Approved by .....
(Parent)

Approved by .....
(Principal or Teacher)

In the first column under the word "Subjects" write on separate lines the names of the studies you wish to take. Indicate clearly the year of the subject. For example, if you are to take English, Bookkeeping, French, etc., write English 2nd year, Bookkeeping 3rd year, French 1st year, as the case may be. As English and Physical Training and Chorus Singing are required of all pupils, these subjects are printed on your program card. You need only to indicate the year. Do not fill in any of the spaces at the right of the vertical double line. If you are to take the second half year of a subject, write following the name of the subject "2nd half".

If you wish to take Orchestra, Band, Glee Club, Harmony, Advanced Chorus Work, Music Appreciation, Art Appreciation, Commercial Design, Advanced Art, Home Decoration, Camp Cooking (Boys), Herald board work, or any other special subjects, be sure they are included in list of studies desired for next year.

Unless otherwise indicated classes report daily.

Pupils entering from Junior High Schools with no conditions, in order to graduate from Senior High School are required to complete 12 units, or 57 hours.

Pupils coming from other schools or conditioned Junior High School students, are required to complete 16 units, or 76 hours. This includes subjects completed in other schools and credited by the Senior High School.

A full unit is defined for admission to college as a prepared subject reporting four or five times a week for a full school year.

Unprepared subjects, like Cooking and Manual Training, receive one-half credit. If you elect one of these subjects, which reports 4 hours each week, you will receive two hours credit, or one-half unit.

A yearly minimum of 19 hours is required. See that your prepared and unprepared studies meet this requirement.

Are you preparing for Normal School, College or Special School? .....

Give name of Institution .....

Have you applied for admission? .....

Do you intend to enter by certificate or examination? .....

(If you have not consulted the catalogues giving requirements of admission, do so at once.)

Courses of study for 2nd, 3rd and 4th years on reverse side

physical exercise.

THE QUESTIONNAIRE AND ITS RELIABILITY

A facsimile of the questionnaire is herewith appended. It is similar to that offered by Miss Emery to the high school students of Wichita, Kansas. No attempt has been made to compare the findings of Holyoke with those of Wichita,- that would be another study in itself, because conditions are decidedly different, and the questionnaire submitted to the Wichita students involved only part of the student body whereas in Holyoke it took in the entire number of students, excluding absentees. The questions have been phrased in a neutral fashion so that the student has not been previously prejudiced. Moreover, since the students have not been forced to disclose their identity, their answers have been as truthful as one could reasonably expect.

If we take "age" as an illustration, we find that the increments between the different classes from the 9th grade to the 12th grade are 12, 11½, and 11 months for the boys; 15½, 11½, and 10½ for the girls. (Ages of the 9th grade girls, who show the greatest variation have been verified on the office record cards.) That students have taken the questionnaire seriously is attested to by the fact that only one of the entire number (1487) showed items that were open to question.

Facsimile of questionnaire submitted on next page.

Actual questionnaire submitted to the high school students, December 9th, 1931.

HOLYOKE PUBLIC SCHOOLS
Holyoke, Massachusetts

INSTRUCTIONS: Please answer the following questions to the best of your ability.
DO NOT SIGN YOUR NAME.
Either insert the word to complete the sentence, as in question 1: You usually get up on school mornings at (seven..) o'clock; or, place a check following the item that best describes the information requested, as in question 2:
Before going to school you eat breakfast: always.....
usually.....
seldom.....
never.....

- - - - - - - - - - - - - - -

Boy.....
Girl.....
Age.....
Class.....(Freshman, sophomore, junior, senior)

1. You usually get up on school mornings at.....o'clock.

2. Before going to school you eat breakfast: always.....
usually.....
seldom.....
never.....

3. How many nights each week do you usually stay home? .....

4. What time do you usually go to bed on school nights? .....

5. What time do you usually go to bed on Sunday nights? .....

6. Each week, the time spent on outside pay job is.....hours.

7. Each week, you help with housework or errands for about.....hours.

8. How many days have you been absent since school opened? .....

9. Between leaving school and your evening meal do you usually:
(Do not check more than TWO items)
study.....
be with friends or visit.....
work on a job.....
help at home.....
go downtown.....
rest or sleep.....
go to shows.....
stay outside, walking or sports...

10. When you go to bed, you usually:
(Check only ONE item)
are physically tired and sleepy.....
are worn out.....
stop work before it is finished.....
feel like staying up longer.....

11. What tires you most during the day:
(Check TWO items)
preparation of lesson.....
gym.....
dressing before and after gym.....
rushing around.....
tests.....
your oral recitations.....
difficult lessons.....
lunch.....

Table 1. NUMBER OF QUESTIONNAIRES RECEIVED

Morning Session

Boys

9th grade.....36
10th grade.....201
11th grade.....216
12th grade.....152
Post graduate.....40

Total.....645

Girls

9th grade.....26
10th grade.....122
11th grade.....197
12th grade.....175
Post graduate.....36

Total.....556

Total of morning session...1201

Afternoon Session

Boys

9th grade.....18
10th grade.....50

Total.....68

Girls

9th grade.....42
10th grade.....176

Total.....218

Total of afternoon session 286

GRAND TOTAL.....1487

PART I

HOW THE HIGH SCHOOL STUDENTS (MORNING SESSION) DIVIDE THEIR SCHOOL DAY

9th Grade BOYS (36)

AGE:

Years	boys	per cent
13	8	25.00
14	17	53.12
15	6	18.75
16	1	3.12
not answered	4	

Extremes: 13 and 16 years
Average age: 14 years

1. You usually get up on school mornings at:

Time	boys
5.15 A.M.	1
5.30 "	1
6.00 "	2
6.30 "	1
7.00 "	13
7.15 "	8
7.30 "	7
7.45 "	1
8.15 "	2

Extremes: 5.15 A.M. and 8.15 A.M.
Average, 7.05 A.M.

2. Before going to school you eat breakfast:

	boys	per cent
always	31	86.
usually	5	14.
seldom	0	
never	0	

3. How many nights each week do you usually stay home:

nights	boys
0	3
1	2
2	6
3	7
4	12
5	4
6	1
7	0
not answered	1

Extremes: 0 and 6
Average: 3 and 1/10th nights

4. What time do you usually go to bed on school nights:

Time	boys
8.00 p.m.	2
8.30 "	2
9.00 "	10
9.15 "	3
9.30 "	5
10.00 "	11
10.30 "	2
12.00 "	1

Extremes: 8.00 p.m. and 12.00 p.m.
Average: 9.29 p.m.

4A. Number of hours of sleep on school nights:

Hours	boys
$7\frac{1}{4}$	1
8	1
$8\frac{1}{2}$	3
$8\frac{3}{4}$	1
9	5

Extremes: $7\frac{1}{4}$ and 11 hours
Average: 9 hours, 36 minutes

9¼	3
9½	5
10	5
10¼	6
10½	3
11	3

5. What time do you usually go to bed on Sunday nights:

time	boys
7.00 p.m.	1
8.00 "	2
9.00 "	7
9.15 "	1
9.30 "	4
10.00 "	11
10.15 "	1
10.30 "	6
11.00 "	2
not given	1

Extremes: 7.00 p.m. and 11.00 p.m.
Average: 9.40 p.m.

6. Each week time spent on outside pay job:

Hours	boys
0	22
1	2
2	1
4	2
6	2
8	2
12	1
14	2
15	1
18	1

Extremes: 0 and 18 hours
Average: 3 and 1/7 hrs.

7. Each week you help with housework or errands:

Hours	boys
0	4
1	9
2	2
4	3
5	3
6	2
7	4
8	2
10	3
12	1
20	2
24	1

Extremes: 0 and 24 hours
Average: 5 and 6/10 hrs.

8. How many days have you been absent since school opened:

days	boys
0	14
1	6
2	2
3	3
4	1
5	4
6	2
7	1
8	1

Extremes: 0 and 10 days
Average: 2½- days

9	1
10	1

9. Between leaving school and your evening meal, you usually:

	boys	per cent
study	22	33.85
be with friends or visit	5	7.69
work on a job	1	1.54
help at home	11	16.92
go downtown	2	3.08
rest or sleep	2	3.08
stay outside, walking or sports	22	33.85
go to shows	0	.00
items not answered	7	

10. When you go to bed, you usually:

	boys	per cent
are physically tired and sleepy	22	64.71
are worn out	1	2.94
stop work before it is finished	0	.00
feel like staying up longer	11	32.25
items not answered	2	

11. What tires you out most during the day:

	boys	per cent
preparation of lessons	6	9.52
gym	6	9.52
dressing before and after gym	5	7.94
rushing around	20	31.75
tests	7	11.11
oral recitations	2	3.17
difficult lessons	14	22.22
lunch	3	4.76
items not answered	9	

10th GRADE BOYS (201)

Age:

years	boys	per cent
14	64	36.78
15	63	36.21
16	30	17.24
17	12	6.90
18	4	2.30
19	1	.58
not given	27	

Extremes: 14 and 19 years
Average: 15 yrs.

1. You usually get up on school mornings at:

Time	boys
6.00 A.M. and before	5
6.15 A.M.	1
6.30 "	6
6.45 "	7
7.00 "	96
7.15 "	28
7.30 "	55
8.00 "	2
not answered	1

Extremes: 5.00 A.M. and 8.00 A.M.
Average: 7.09 A.M.

2. Before going to school you usually eat breakfast:

	boys	per cent
always	173	86.93

usually	24	12.06
seldom	2	1.01
never	0	.00
not answered	2	

3. How many nights each week do you usually stay home:

nights	boys
0	2
1	8
2	50
3	37
4	48
5	36
6	10
7	10

Extremes: 0 and 7 nights
Average: 3.59 nights

4. What time do you usually go to bed on school nights:

Time	boys
9.00 p.m. and before	48
9.30 "	61
10.00 "	58
10.30 "	24
11.00 "	9
11.30 "	1

Extremes: 8.00 p.m. and 11.30 p.m.
Average: 9.43 p.m.

4A. Number of hours of sleep on school nights:

hours	boys
7	1
8	6
8½	18
9	58
9½	20
9¾	40
10	30
10¼	27
not answered	1

Extremes: 7 hrs. and 10¼ hrs.
Average: 9 hrs., 26 minutes

5. What time do you usually go to bed on Sunday nights:

Time	boys
9.00 and before	23
9.30 p.m.	43
10.00	73
10.30	23
11.00	24
11.30	10
12.00	4
not answered	1

Extremes: 9.00 p.m. and 12.00 p.m.
Average: 10.04 p.m.

6. Each week time spent on outside pay job:

hours	boys
0	104
1	3
2	8
3	5
4	6
5	5
6	6
7	1
8	7
9	1
10	8
12	5

14	2
15	7
18	5
19	1
20	2
21	2
22	1
23	1
24	6
25	1
28	3
30	1
32	1
35	3
50	2
not answered	4

Extremes: 0 and 50 hours,
Average: 6.2 hours

7. Each week you help with housework or errands:

hours	boys
0	30
2	45
3	27
4	13
5	29
6	9
7	12
8	6
9	1
10	6
11	2
12	4
14	5
15	1
20	2
25	3
not answered	6

Extremes: 0 and 25 hours
Average: 4.6 hours

8. How many days have you been absent since school opened:

days	boys
0	94
1	28
2	32
3	17
4	9
5	6
6	1
7	2
8	4
9	2
12	2
15	4

Extremes: 0 and 15 days
Average: $1\frac{2}{3}$ days (plus)

9. Between leaving school and your evening meal, you usually:

	boys	per cent
study	137	36.95
be with friends or visit	21	5.66
work on a job	53	14.29
help at home	35	9.43

go downtown	13	3.50
rest or sleep	2	.54
go to shows	6	1.62
stay outside, walking or sports	104	28.03
items not answered	31	

10. When you go to bed, you usually:

	boys	per cent
are physically tired and sleepy	113	57.95
are worn out	12	6.16
stop work before it is finished	13	6.67
feel like staying up longer	57	29.23
not answered	6	

11. What tires you most during the day:

	boys	per cent
preparation of lessons	62	17.66
gym	23	6.55
dressing before and after gym	9	2.56
rushing around	91	25.93
tests	56	15.95
oral recitations	10	2.85
difficult lessons	99	28.21
lunch	1	.28
items not answered	51	

11th GRADE BOYS (216)

Age:

years	boys	per cent
15	65	35.14
15½	1	.54
16	75	40.54
17	30	16.22
17½	1	.54
18	8	4.32
18½	5	2.70
not given	31	

Extremes: 15 and 18½ years
Average: 15 yrs. and 11½ mo's.

1. You usually get up on school mornings at:

Time	boys
5.00 A.M.	2
5.30 "	1
6.00 "	4
6.30 "	15
6.45 "	10
7.00 "	75
7.15 "	34
7.30 "	64
7.45 "	7
8.00 "	4

Extremes: 5 A.M. and 8.00 A.M.
Average: 7.08 A.M.

2. Before going to school, you usually eat breakfast:

	boys	per cent
always	168	78.87
usually	38	17.84
seldom	6	2.82
never	1	.47
not answered	3	

3. How many nights each week do you usally stay home:

nights	boys
0	14
1	14
2	36
3	52
4	43
5	31
6	16
7	7
not ans.	3

Extremes: 0 and 7 nights
Average: 3 1/3 nights

4. What time do you usually go to bed on school nights:

time	boys
8.00 p.m.	1
9.00 "	20
9.15 "	4
9.30 "	40
9.45 "	2
10.00 "	84
10.15 "	3
10.30 "	35
10.45 "	6
11.00 "	14
11.15 "	1
11.30 "	4
12.00 "	1
12.15 "	1

Extremes: 8.00 p.m. and 12.15 A.M.
Average: 10.01 p.m.

4A. Number of hours of sleep on school nights

hours	boys	hours	boys
$6\frac{1}{2}$	1	9	44
$6\frac{3}{4}$	1	$9\frac{1}{4}$	19
7	1	$9\frac{1}{2}$	40
$7\frac{1}{2}$	7	$9\frac{3}{4}$	10
8	8	10	26
$8\frac{1}{4}$	3	$10\frac{1}{4}$	4
$8\frac{1}{2}$	26	$10\frac{1}{2}$	6
$8\frac{3}{4}$	19	11	1

Extremes: $6\frac{1}{2}$ and 11 hours
Average: 9 hours, 7 minutes

5. What time do you usually go to bed on Sunday nights:

Time	boys
8.00 p.m.	1
8.30 "	1
9.00 "	9
9.15 "	2
9.30 "	18
9.45 "	2
10.00 "	74
10.15 "	2
10.30 "	47
10.45 "	3
11.00 "	32
11.15 "	1
11.30 "	10

Time	boys
12.00 p.m.	10
1.00 a.m.	1
not answered	3

Extremes: 8.00 p.m. and 1.00 a.m.
Average: 10.27 p.m.

6. Each week time spent on outside pay job:

hours	boys	hours	boys
0	111	20	9
1	2	21	1
2	2	22	1
3	1	24	6
4	5	25	3
5	6	26	1
6	6	27	1
7	4	28	2
8	6	30	10
9	1	32	1
10	8	35	1
12	12	38	1
13	1	40	6
14	1	not answered	2
15	2		
18	3		

Extremes: 0 and 40 hours
Average: 8 hours

7. Each week you help with housework or errands:

hours	boys	hours	boys
0	35	12	3
1	17	14	2
2	31	15	3
3	21	19	1
4	14	20	4
5	32	24	2
6	10	26	1
7	10	30	1
8	6	not answered	5
9	1		
10	17		

Extremes: 0 and 30 hours
Average: 4 7/8 hours

8. How many days have you been absent since school opened:

days	boys	days	boys
0	106	11	2
1	33	12	2
2	29	14	1
3	13	15	2
4	4	16	1
5	6	18	1
6	6	35	1
7	3	not answered	2
8	2		
10	2		

Extremes: 0 and 35 days
Average: 2 days

9. Between leaving school and your evening meal, you usually:

	boys	per cent.
study	120	31.25
be with friends or visit	11	2.86

	boys	per cent
work on a job	71	18.49
help at home	49	12.76
go downtown	12	3.13
rest or sleep	5	1.30
go to shows	9	2.34
stay outside, walking or sports	107	27.86
items not answered	48	

10. When you go to bed, you usually:

	boys	per cent
are physically tired and sleepy	115	53.99
are worn out	16	7.51
stop work before it is finished	7	3.29
feel like staying up longer	75	35.21

11. What tires you out most during the day:

	boys	per cent
preparation of lessons	94	24.42
gym	21	5.45
dressing before and after gym	12	3.12
rushing around	85	22.08
tests	55	14.29
oral recitations	20	5.19
difficult lessons	96	24.96
lunch	2	.52
items not answered	47	

12th GRADE BOYS (152)

Age:

years	boys	per cent
16	41	28.27
16½	10	6.90
17	59	40.69
17½	6	4.14
18	22	15.17
18½	1	.69
19	3	2.07
21	1	.69
22	1	.69
23	1	.69
not given	7	

Extremes: 16 and 23 years
Average: 16 yrs., 10½ mo's.

1. You usually get up on school mornings at:

Time		boys	
Before 6.00 A.M.		4	(3; 4; 4.30; 5.30)
6.15	"	1	
6.30	"	4	
6.45	"	7	
7.00	"	54	
7.15	"	29	
7.30	"	41	
7.45	"	12	

Extremes: 3.00 A.M. and 7.45 A.M.
Average: 7.07 A.M.

2. Before going to school you usually eat breakfast:

	boys	per cent
always	119	79.33
usually	20	13.33

seldom	10	6.67
never	1	.67
not answered	2	

3. How many nights each week do you usually stay home:

Nights	boys
0	13
1	12
2	19
3	34
4	34
5	21
6	12
7	4
not answered	3

Extremes: 0 and 7 nights
Average: 3 1/3 nights

4. What time do you usually go to bed on school nights:

hours	boys
9.00 p.m. and before	7
9.30 p.m.	26
10.00 "	56
10.30 "	32
11.00 "	25
11.30 "	3
12.00 "	3

Extremes: 9.00 p.m. and 12.00 p.m.
Average: 10.13 p.m.

4A. Number of hours of sleep on school nights:

hours	boys
4½	1
5½	1
5¾	1
6	1
7	1
7½	2
8	21
8½	24
9	48
9½	42
10	5
11	5

Extremes: 4½ and 11 hours
Average: 8 hrs., 54 minutes

5. What time do you usually go to bed on Sunday nights:

Time	boys
9.00 p.m. and before	7
9.30 p.m.	13
10.00 "	44
10.30 "	35
11.00 "	32
11.30 "	11
12.00 "	9
2.00 A.M.	1

Extremes: 8.15 p.m. and 2.00 A.M.
Average: 10.30 p.m.

6. Each week time spent on outside pay job is:

hours	boys
0	64
1	1
2	6

hours	boys	hours	boys
3	2	16	5
4	4	18	3
5	1	20	4
6	4	22	4
7	2	25	4
8	8	28	2
10	10	30	9
12	5	35	5
14	2	40	1
15	3	45	3

Extremes: 0 and 45 hours
Average: $9\frac{1}{2}$ hrs. (plus)

7. Each week you help with housework or errands:

hours	boys	hours	boys
0	31	8	6
1	12	9	1
2	20	10	12
3	16	12	1
4	11	14	2
5	15	15	3
6	10	20	2
7	9	30	1

Extremes: 0 and 30 hours
Average: 4 2/5 hrs.

8. How many days have you been absent since school opened:

days	boys	days	boys
0	66	9	1
1	28	10	4
2	19	12	1
3	11	13	1
4	8	15	1
5	6	19	1
6	2	22	1
7	1	30	1

Extremes: 0 and 30 days
Average: $2\frac{1}{4}$ days

9. Between leaving school and your evening meal do you usually:

	boys	per cent
study	91	32.62
be with friends or visit	11	3.91
work on a job	52	18.64
help at home	33	11.83
go downtown	10	3.58
rest or sleep	6	2.15
go to shows	4	1.43
stay outside, walking or sports	72	25.81
not answered	25	

10. When you go to bed, you usually:

	boys	per cent
are physically tired and sleepy	97	65.99
are worn out	10	6.80
feel like staying up longer	30	20.41

stop work before it is finished	10	6.80
not answered	5	

11. What tires you most during the day:

	boys	per cent
preparation of lessons	55	21.32
gym	16	6.20
dressing before and after gym	3	1.16
rushing around	63	24.42
tests	36	13.95
oral recitations	12	4.65
difficult lessons	66	25.58
lunch	4	1.55
working after school	3	1.16
items not checked	46	

POST GRADUATE BOYS (40)

Age:

years	boys	percent
17	5	12.50
17½	3	7.50
18	18	45.00
18½	1	2.50
19	4	10.00
19½	1	2.50
20	2	5.00
21	2	5.00
23	1	2.50
not given	3	7.50

Extremes: 17 and 23 yrs.
Average: 18 yrs., 5 mo's.

1. You usually get up on school mornings at:

Time	boys
6.00 A.M. and before	1 (4.15 A.M.)
6.45 "	2
7.00 "	15
7.15 "	7
7.30 "	12
8.00 "	1
8.15 "	1
9.00 "	1

Extremes: 4.15 A.M. and 9.00 A.M.
Average: 7.13 A.M.

2. Before going to school you eat breakfast:

	boys	per cent
always	29	76.32
usually	9	23.68
seldom	0	
never	0	
not answered	2	

3. How many nights each week do you usually stay home:

Nights	boys
0	6
1	1
2	10
3	9
4	6
5	3

6	3	Extremes: 0 and 6 nights
7	0	Average: 2 $\frac{1}{4}$ nights
not answered	2	

4. What time do you usually go to bed on school nights:

hour	boys	
9.30 p.m.	1	Extremes: 9.30 and 11.00
10.00 "	12	p.m.
10.30 "	21	Average: 10.24 p.m.
11.00 "	6	

4A. Number of hours of sleep on school nights:

hours	boys	
6	1	Extremes: 6 and 10$\frac{1}{2}$ hours
8	1	Average: 8 4/5 hrs.
8$\frac{1}{2}$	18	
9	15	
9$\frac{1}{2}$	3	
10$\frac{1}{2}$	2	

5. What time do you usually go to bed on Sunday nights:

Time	boys	
10.00 p.m.	5	Extremes: 10.00 p.m. and
10.30 "	12	12.30 A.M.
11.00 "	19	Average: 10.48 p.m.
11.30 "	2	
12.00 "	1	
12.30 A.M.	1	

6. Each week time spent on outside pay job is:

hours	boys	hours	boys
0	18	13	1
1	1	14	1
4	1	15	1
5	1	16	2
7	1	18	2
9	1	20	1
10	2	25	2
12	4	45	1

Extremes: 0 and 45 hours
Average: 8 hrs.

7. Each week you help with housework or errands for about:

hours	boys	
0	6	
2	5	
3	4	
4	3	
5	5	Extremes: 0 and 40 hours
6	3	Average: 6 hrs.
7	1	
8	6	
9	1	
10	1	
12	3	
15	1	
40	1	

8. How many days have you been absent since school opened:

days	boys
0	22
1	5
2	4
3	3
4	3
5	2
9	1

Extremes: 0 and 9 days
Average: 1 1/3 days

9. Between leaving school and your evening meal do you usually:

	boys	per cent
study	23	29.49
be with friends or visit	4	5.13
work on a job	11	14.10
help at home	17	21.79
go downtown	7	8.97
rest or sleep	1	1.28
go to shows	4	5.13
stay outside, walking or sports	11	14.10
items not checked	2	

10. When you go to bed you usually:

	boys	per cent
are physically tired and sleepy	24	60.00
are worn out	0	.00
stop work before it is finished	0	.00
feel like staying up longer	16	40.00

11. What tires you most during the day:

	boys	per cent
preparation of lessons	12	19.05
gym	3	4.76
dressing before and after gym	1	1.59
rushing around	19	30.16
tests	13	20.63
oral recitations	3	4.76
difficult lessons	10	15.87
lunch	0	.00
work	2	3.17
items not checked	17	

9th GRADE GIRLS

Age:

years	girls	per cent
12	5	20.00
13	5	20.00
14	13	52.00
15	1	4.00
16	1	4.00
not answered	1	

Extremes: 12 yrs. and 16 yrs.
Average: 13½ yrs.

1. You usually get up on school mornings at:

Time	girls
6.45 A.M.	4
7.00 "	15
7.15 "	5
7.30 "	1
not answered	1

Extremes: 6.45 A.M. and 7.30 A.M.
Average: 7.02 A.M.

2. Before going to school you eat breakfast:

	girls	per cent
always	20	80.00
usually	3	12.00
seldom	2	8.00
never	0	
not checked	1	

3. How many nights each week do you usually stay home:

Nights	girls
0	0
1	0
2	0
3	0
4	6
5	8
6	4
7	7
not answered	1

Extremes: 4 and 7 nights
Average: 5½ nights

4. What time do you usually go to bed on school nights:

Hour	girls
8.00 p.m.	1
8.30 "	1
9.00 "	6
9.30 "	10
10.00 "	8

Extremes: 8.00 p.m.and 10.00 p.m.
Average: 13 ½ years

4A. Number of hours of sleep on school nights:

Hours	girls
9	4
9¼	6
9 ½	7
9¾	2
10	3
10¼	1
10½	1
11	1
not answered	1

Extremes: 9 hrs. and 11 hrs.
Average: 9 hrs. and 34 minutes

5. What time do you usually go to bed on Sunday nights:

Time	girls
9.00 p.m. and before	4
9.30 "	8
10.00 "	9
10.30 "	4
11.30 "	1

Extremes: 9.00 p.m. and 11.30 p.m.
Average: 9.50 p.m.

6. Each week time spent on outside pay job is:

Hours	girls
0	25
1	1

Extremes: 0 and 1 hr.
Average: 2 minutes

7. Each week you help with housework or errands for about:

Hours	girls	hours	girls
0	3	6	3
1	2	7	1
2	4	8	1
3	4	10	1
4	1	14	2
5	3	15	1

Extremes: 0 and 15 hours
Average: 4 7/8 hrs.

8. How many days have you been absent since school opened:

Days	girls
0	19
1	4
2	0
3	1
4	0
5	1
12	1

Extremes: 0 and 12 days,
Average: 9/10 days

9. Between leaving school and your evening meal do you usually:

	girls	per cent
study	22	45.83
be with friends or visit	4	8.33
work on a job	0	.00
help at home	10	20.83
go downtown	4	8.33
rest or sleep	0	.00
go to shows	0	.00
stay outside, walking or sports	8	16.67
items not answered	4	

10. When you go to bed you usually:

	girls	per cent
are physically tired and sleepy	19	79.17
are worn out	3	12.50
stop work before it is finished	0	.00
feel like staying up longer	2	8.33
items not answered	2	

11. What tires you most during the day:

	girls	per cent
preparation of lessons	10	21.28
gym	8	17.02
dressing before and after gym	2	4.26
rushing around	9	19.15
tests	6	12.77
oral recitations	1	2.13
difficult lessons	11	23.40
lunch	0	.00
items not answered	5	

10th GRADE GIRLS (122)

Age:

years	girls	per cent
13	2	1.68
14	37	31.09
14½	11	9.24
15	49	41.18
15½	9	7.56
16	7	5.88
16½	1	.84
17	2	1.68
19	1	.84
not answered	3	

1. You usually get up on school mornings at:

Time	girls
6.30 A.M.	6
6.45 "	7
7.00 "	61
7.15 "	25
7.30 "	19
7.45 "	3
8.15 "	1

Extremes: 6.30 A.M. and 8.15 A.M.
Average: 7.05 A.M.

2. Before going to school you eat breakfast:

	girls	per cent
always	99	81.82
usually	12	9.92
seldom	8	6.61
never	2	1.65
not answered	1	

3. How many nights each week do you usually stay home:

nights	girls
0	1
1	3
2	7
3	12
4	43
5	40
6	9
7	4
not answered	3

Extremes: 0 and 7 nights
Average: 4¼ nights

4. What time do you usually go to bed on school nights:

hour	girls
8.30 A.M.	3
9.00 "	21
9.15 "	3
9.30 "	46
9.45 "	2
10.00 "	36
10.15 "	1
10.30 "	8
11.45 "	1
12.00 "	1

Extremes: 8.30 p.m. and 12.00 p.m.
Average: 9.39 p.m.

4A. Number of hours of sleep on school nights:

hours	girls
8	1
8¼	1
8½	7
8¾	5
9	20
9¼	18
9½	38
9¾	6
10	17
10¼	4
10½	1
10¾	3
11½	1

Extremes: 8 hrs. and 11½ hrs.
Average: 9 hrs., 26 minutes

5. What time do you usually go to bed on Sunday nights:

Time	girls	Time	girls
8.00 p.m.	1	10.15 p.m.	2
8.30 "	3	10.30 "	14
8.45 "	1	10.45 "	1
9.00 "	10	11.00 "	12
9.15 "	3	11.15 "	1
9.30 "	25	11.30 "	1
9.45 "	1	12.00 "	2
10.00 "	42	not answered	3

Extremes: 8.00 p.m. and 12.00 p.m.
Average: 9.48 p.m.

6. Each week time spent on outside pay job is:

Hours	girls
0	101
2	1
3	4
4	1
5	5
6	1
7	1
8	2
12	1
14	1
24	3
40	1

Extremes: 0 and 40 hours
Average: 1 hr. 54 minutes

7. Each week you help with housework or errands for about:

Hours	girls	hours	girls
0	10	14	7
1	5	15	2
2	23	16	2
3	10	17	4
4	10	20	1
5	9	21	2
6	4	24	2
7	13	25	1
8	2	28	1
10	9	32	1
11	1	Not answered	2
12	1		

Extremes: 0 and 32 hrs.
Average: 6 hrs. 53 minutes

8. How many days have you been absent since school opened:

Days	girls
0	59
1	30
2	6
3	11
4	3
5	5
6	7
7	1

Extremes: 0 and 7 days
Average: 1 1/3 days

9. Between leaving school and your evening meal you usually:

	girls	per cent
study	95	40.60
be with friends or visit	27	11.54
work on a job	9	3.85

	girls	per cent
help at home	26	11.11
go downtown	20	8.55
rest or sleep	4	1.71
go to shows	12	5.13
stay outside, walking or sports	40	17.09
clubs	1	.43
items not checked	10	

10. When you go to bed you usually:

	girls	per cent
are physically tired and sleepy	80	68.97
are worn out	8	6.90
stop work before it is finished	4	3.45
feel like staying up longer	24	20.69
items not answered	6	

11. What tires you most during the day:

	girls	per cent
preparation of lessons	40	18.43
gym	12	5.53
dressing before and after gym	13	5.99
rushing around	59	27.19
tests	37	17.05
oral recitations	5	2.30
difficult lessons	51	23.50
items not checked	27	

11th GRADE GIRLS (197)

Age:

years	girls	per cent
14	2	1.12
15	75	41.89
15½	3	1.68
16	69	38.55
16½	1	.56
17	26	14.53
18	3	1.68
not answered	18	

Extremes: 14 yrs. and 18 yrs.,
Average: 15 yrs. 8 3/4 mo's.

1. You usually get up on school mornings at:

Time	girls
5.30 A.M.	1
6.00 "	3
6.30 "	6
6.45 "	14
7.00 "	123
7.15 "	24
7.30 "	22
8.15 "	3
not answered	1

Extremes: 5.30 A.M. and 8.15 A.M.
Average: 7.03 A.M.

2. Before going to school you eat breakfast:

	girls	per cent
always	145	73.60
usually	34	17.26
seldom	14	7.11
never	4	2.03

3. How many nights each week do you usually stay home:

nights	girls
0	2
1	4
2	25
3	44
4	68
5	40
6	5
7	5
not answered	4

Extremes: 0 and 7 nights,
Average: 3 3/4 nights

4. What time do you usually go to bed on school nights:

hour	girls
8.30 p.m.	1
9.00 "	14
9.30 "	42
10.00 "	90
10.30 "	30
11.00 "	15
11.30 "	3
12.00 "	1
not answered	1

Extremes: 8.30 p.m. and 12.00 p.m.
Average: 10.00 p.m.

4A. Number of hours of sleep on school nights:

hours	girls
6	1
8	17
$8\frac{1}{4}$	4
$8\frac{1}{2}$	19
$8\frac{3}{4}$	12
9	65
$9\frac{1}{4}$	17
$9\frac{1}{2}$	39
$9\frac{3}{4}$	3
10	13
$10\frac{1}{4}$	3
$10\frac{3}{4}$	1
not answered	3

Extremes: 6 hrs. and $10\frac{3}{4}$ hrs.
Average: 9 hrs., 3 minutes

5. What time do you usually go to bed on Sunday nights:

Hour	girls
9.00 p.m. and before	9
9.30 p.m.	14
10.00 "	62
10.30 "	54
11.00 "	44
11.30 "	7
12.00 "	4
12.30 "	1
not answered	2

Extremes: 9.00 p.m. and 12.30 A.M.
Average: 10.23 p.m.

6. Each week time spent on outside pay job is:

Hours	girls	hours	girls
0	135	14	1
1	1	15	2
2	5	16	2
3	5	18	1
4	9	20	4
5	6	24	1
6	2	25	1
7	3	28	1
8	3	30	4
9	1	40	1
10	4		
12	5		

Extremes: 0 and 40 hrs.
Average: 3 2/5 hrs.

7. Each week you help with housework or errands for about:

hours	girls	hours	girls
0	17	15	8
1	7	16	1
2	20	17	1
3	20	18	2
4	14	20	2
5	17	22	2
6	11	23	1
7	16	24	1
8	12	25	3
9	3	28	2
10	17	30	1
11	2	40	1
12	8		
13	1		
14	7		

Extremes: 0 and 40 hours,
Average: 7 4/9 hrs.

8. How many days have you been absent since school opened:

days	girls	days	girls
0	90	8	2
1	29	9	1
2	22	10	3
3	18	20	1
4	16	22	1
5	3	27	1
6	3	34	1
7	6		

Extremes: 0 and 34 days
Average: 2 3/10 days

9. Between leaving school and your evening meal do you usually:

	girls	per cent
study	152	40.75
be with friends or visit	25	6.70
work on a job	25	6.70
help at home	81	21.72
go downtown	35	9.38
rest or sleep	6	1.61
go to shows	10	2.68
stay outside, walking or sports	39	10.46
items not answered	21	

10. When you go to bed, you usually:

	girls	per cent
are physically tired and sleepy	139	70.92
are worn out	4	2.04
stop work before it is finished	5	2.55
feel like staying up longer	48	24.49
items not answered	1	

11. What tires you most during the day:

	girls	per cent
preparation of lessons	69	19.17
gym	10	2.78
dressing before and after gym	18	5.00
rushing around	91	25.28
tests	50	13.89
oral recitations	22	6.11
difficult lessons	98	27.22
lunch	2	.56
items not answered	34	

12th GRADE GIRLS (175)

Age:

Years	girls	per cent
15	2	1.27
16	67	42.68
16½	1	.64
17	75	47.77
18	11	7.00
19	1	.64
not answered	18	

Extremes: 15 yrs. and 19 yrs.
Average: 16 yrs. 7½ mo's

1. You usually get up on school mornings at:

Time	girls
6.00 A.M.	2
6.15 "	1
6.30 "	6
6.45 "	4
7.00 "	101
7.15 "	37
7.30 "	19
7.45 "	2
not answered	3

Extremes: 6.00 A.M. and 7.45 A.M.
Average: 7.05 A.M.

2. Before going to school you eat breakfast:

	girls	per cent
always	130	75.14
usually	29	16.76
seldom	7	4.05
never	7	4.05
not answered	2	

3. How many nights each week do you usually stay home:

nights	girls
0	0
1	3
2	18
3	46
4	53
5	38

Extremes: 1 and 7 nights,
Average: 3 9/10 nights

6	9
7	5
not answered	3

4. What time do you usually go to bed on school nights:

Hour	girls
8.00 p.m.	1
9.00 "	5
9.30 "	30
9.45 "	2
10.00 "	82
10.30 "	31
11.00 "	18
11.30 "	3
not answered	3

Extremes: 8.00 p.m. and 11.30 p.m.
Average: 10.05 p.m.

4A. Number of hours of sleep on school nights:

Hours	girls
$7\frac{1}{2}$	2
8	14
$8\frac{1}{4}$	7
$8\frac{1}{2}$	19
$8\frac{3}{4}$	13
9	63
$9\frac{1}{4}$	7
$9\frac{1}{2}$	25
$9\frac{3}{4}$	15
10	7
11	1
not answered	2

Extremes: $7\frac{1}{2}$ and 11 hours,
Average: 9 hrs.

5. What time do you usually go to bed on Sunday nights:

Hour	girls
9.00 p.m. and before	3
9.30 p.m.	6
10.00 "	54
10.30 "	41
11.00 "	49
11.30 "	15
12.00 "	3
12.30 "	1
not answered	3

Extremes: 9.00 p.m. and 12.30 p.m.
Average: 10.33 p.m.

6. Each week time spent on outside pay job is:

Hours	girls	hours	girls
0	131	13	2
2	2	14	2
3	5	16	2
4	3	17	1
5	1	20	1
6	2	24	2
7	3	28	1
8	2	30	1
9	1	36	1
10	1	39	2
11	2	40	1
12	4	45	2

Extremes: 0 and 45 hours
Average: 3 hrs., 26 minutes

7. Each week you help with housework or errands for about:

Hours	girls	hours	girls
0	14	12	10
1	2	14	8
2	14	15	7
3	14	16	2
4	15	18	2
5	14	20	3
6	15	21	1
7	21	22	1
8	11	24	2
9	2	28	1
10	13	not answered	1
11	2		

Extremes: 0 and 28 hrs.,
Average: 7 hrs., 8 minutes

8. How many days have you been absent since school opened:

Days	girls
0	73
1	32
2	22
3	13
4	13
5	14
6	5
7	1
8	1
10	1

Extremes: 0 and 10 days,
Average: 1 2/3 days

9. Between leaving school and your evening meal do you usually:

	girls	per cent
study	125	42.86
be with friends or visit	19	6.03
work on a job	26	8.25
help at home	58	18.41
go downtown	33	10.48
rest or sleep	4	1.27
go to shows	10	3.17
stay outside, walking or sports	29	9.21
work	1	.32
items not answered	35	

10. When you go to bed, you usually:

	girls	per cent
are physically tired and sleepy	116	66.29
are worn out	12	6.86
stop work before it is finished	2	1.14
feel like staying up longer	45	25.71

11. What tires you most during the school day:

	girls	per cent
preparation of lessons	71	21.98
gym	11	3.41
dressing before and after gym	11	3.41
rushing around	86	26.63
tests	54	16.72
oral recitations	5	1.52
difficult lessons	82	25.39
lunch	2	.62

work	1	.31
items not answered	27	

POST GRADUATE GIRLS (26)

Age:

years	girls	per cent
16	1	3.33
17	18	60.00
18	9	30,00
19	1	3.33
23	1	3.33
not answered	6	

Extremes: 16 yrs. and 23 yrs.
Average: 17 yrs., 6 mo's.

1. You usually get up on school mornings at:

Time	girls
7.00 A.M.	12
7.15 "	8
7.30 "	8
7.45 "	2
8.00 "	2
8.30 "	1
8.45 "	1
9.00 "	1
9.15 "	1

Extremes: 7.00 A.M. and 9.15 A.M.
Average: 7.28 A.M.

2. Before going to school you eat breakfast:

	girls	per cent
always	28	77.78
usually	3	8.33
seldom	3	8.33
never	2	5.56

3. How many nights each week do you usually stay home:

nights	girls
0	3
1	4
2	5
3	6
4	8
5	7
6	2
7	1

Extremes: 0 and 7 nights,
Average: 3 1/4 nights (plus)

4. What time do you usually go to bed on school nights:

Hour	girls
9.30 p.m..	2
9.45 "	1
10.00 "	12
10.15 "	2
10.30 "	9
11.00 "	8
11.30 "	1
12.00 "	1

Extremes: 9.30 p.m. and 12.00 p.m.
Average: 10.25 p.m.

4A. Number of hours of sleep on school nights:

Hours	girls
$7\frac{1}{4}$	1
8	2
$8\frac{1}{2}$	4

$8\frac{3}{4}$	3
9	13
$9\frac{1}{4}$	6
$9\frac{1}{2}$	3
10	2
$10\frac{1}{4}$	1
11	1

Extremes: $7\frac{1}{4}$ hrs. and 11 hrs.
Average: 9 hrs., 3 minutes

5. What time do you usually go to bed on Sunday nights:

Hour	girls
9.30 p.m.	1
10.00 "	5
10.30 "	5
11.00 "	18
11.30 "	4
12.00 "	2
not answered	1

Extremes: 9.30 p.m. and 12.00 p.m.
Average: 10.52 p.m.

6. Each week time spent on outside pay job is:

Hours	girls
0	28
4	1
8	1
9	2
14	1
37	1
40	1
not answered	1

Extremes: 0 and 49 hours,
Average : 3hrs., 42 minutes.

7. Each week you help with housework or errands for about;

Hours	girls	hours	girls
0	1	14	1
1	1	15	1
2	3	17	1
3	1	20	2
4	4	23	1
5	3	25	1
6	3	28	2
7	1	35	1
9	2	not answered	3
10	2		
11	1		
12	1		

Extremes: 0 and 35 hours,
Average: 9 hrs., 49 minutes

8. How many days have you been absent since school opened:

days	girls
0	8
1	10
2	6
3	1
4	1
6	4
7	2
8	1
10	1
15	1
24	1

Extremes: 0 and 24 days,
Average: 3 2/5 days

9. Between leaving school and your evening meal, do you usually:

	girls	per cent
study	9	13.43
be with friends or visit	16	23.88
work on a job	3	4.48
help at home	11	16.42
go downtown	11	16.42
rest or sleep	0	.00
go to shows	7	10.45
stay outside, walking, or sports	10	14.93
items not checked	5	

10. When you go to bed you usually:

	girls	per cent
are physically tired and sleepy	22	66.67
are worn out	1	3.03
stop work before it is finished	0	.00
feel like staying up longer	10	30.30
not answered	3	

11. What tires you most during the day:

	girls	per cent
preparation of lessons	11	21.57
gym	0	.00
dressing before and after gym	0	.00
rushing around	24	47.06
tests	7	13.73
oral recitations	0	.00
difficult lessons	7	13.73
lunch	2	3.92
items not checked	21	

9th GRADE BOYS (18) AFTERNOON SESSION

Age:

Years	boys	per cent
13	4	23.53
14	6	35.29
15	5	29.41
16	1	5.88
17	1	5.88
not answered	1	

Extremes: 13 years and 17 years
Average : 14 yrs., 4.2 mo's.

1. You usually get up on school mornings at:

Time	boys
7.00 A.M.	3
8.00 "	4
8.30 "	1
8.45 "	1
9.00 "	5
9.15 "	1
9.30 "	2
10.30 "	1

Extremes: 7.00 A.M. and 10.30 A.M.
Average : 8.33 A.M.

2. Before going to school you eat breakfast:

	boys	per cent
always	16	88.89
usually	1	5.56
seldom	1	5.56
never	0	.00

3. How many nights each week do you usually stay home:

Nights	boys
0	1
1	0
2	2
3	2
4	2
5	7
6	1
7	0
not answered	3

Extremes: 0 and 6 nights,
Average: 3 9/10 nights

4. What time do you usually go to bed on school nights:

Hour	boys
8.00 p.m.	1
9.00 "	7
9.30 "	1
10.00 "	7
10.15 "	1
10.30 "	1

Extremes: 8.00 p.m. and 10.30 p.m.
Average: 9.31 p.m.

4A. Number of hours of sleep on school nights:

Hours	boys
10	3
10½	1
10 ¾	1
11	8
11½	3
12	1
12½	1

Extremes: 10 hrs. and 12½ hrs.
Average: 11 hrs., 1 minute

5. What time do you usually go to bed on Sunday nights:

Hour	boys
9.00 p.m.	2
9.15 "	1
9.30 "	6
10.00 "	3
10.15 "	1
10.30 "	2
11.00 "	3

Extremes: 9.00 p.m. and 11.00 p.m.
Average: 9.22 p.m.

6. Each week time spent on outside pay job is:

Hours	boys
0	13
1	1
2	1
5	1
18	1
27	1

Extremes: 0 and 27 hours,
Average: 3 hrs.

7. Each week you help with housework or errands for about:

Hours	boys
0	2
2	4
3	2
4	1
5	1
6	1
7	2
9	1
10	1

15	1
28	1
30	1

Extremes: 0 and 30 hours
Average: $7\frac{1}{2}$ hours

8. How many days have you been absent since school opened:

Days	Boys
0	10
1	2
2	3
3	1
5	2

Extremes: 0 and 5 days
Average : 1 and 1/6 days

9. Between leaving school and your evening meal, do you usually:

	boys	per cent
study	8	29.63
be with friends or visit	0	.00
work on a job	3	11.11
help at home	10	37.04
go downtown	0	.00
rest or sleep	0	.00
go to shows	0	.00
stay outside, walking, or sports	6	22.22
items not answered	9	

10. When you go to bed you usually:

	boys	per cent
are physically tired and sleep	8	44.44
are worn out	2	11.11
stop work before it is finished	0	.00
feel like staying up longer	8	44.44

11. What tires you most during the day:

	boys	per cent
preparation of lessons	5	17.86
gym	2	7.14
dressing before and after gym	3	10.71
rushing around	12	42.86
tests	2	7.14
oral recitations	0	.00
difficult lessons	4	14.29
items not answered	8	

10th GRADE BOYS (50) AFTERNOON SESSION

Age:

Years	boys	per cent
14	21	48.84
15	14	32.56
16	3	6.98
17	4	9.30
18	1	2.33
Not answered	7	

Extremes: 14 years and 18 years
Average: 14 yrs., 10 mo's.

1. You usually get up on school mornings at:

Time	boys
4.30 A.M.	1
5.00 "	1
5.30 "	1

7.00 A.M.	8
7.30 "	3
8.00 "	11
8.15 "	1
8.30 "	6
9.00 "	12
10.00 "	5
10.30 "	1

Extremes: 4.30 A.M. and 10.30 A.M.
Average: 8.02 A.M.

2. Before going to school you eat breakfast:

	boys	per cent
always	43	86.00
usually	5	10.00
seldom	1	2.00
never	1	2.00

3. How many nights each week do you usually stay home:

Nights	boys
0	4
1	1
2	6
3	10
4	9
5	10
6	4
7	3
not answered	3

Extremes: 0 and 7 nights,
Average: 4 1/8 nights

4. What time do you usually go to bed on school nights:

Hour	boys
8.00 p.m.	1
8.30 "	1
9.00 "	11
9.15 "	1
9.30 "	13
9.45 "	1
10.00 "	17
10.30 "	3
11.00 "	2

Extremes: 8.00 p.m. and 11.00 p.m.
Average: 9.38 p.m.

4A. Number of hours of sleep on school nights:

Hours	boys
7	1
7½	1
8	1
9½	6
10	9
10½	13
11	7
11½	6
12½	5
13	1

Extremes: 7 hrs. and 12 hrs.
Average: 10 hrs., 23 minutes

5. What time do you usually go to bed on Sunday nights:

Hour	boys
8.00 p.m.	1
9.00 "	4

Extremes: 8.00 p.m. and 11.00 p.m.

10.00 p.m.	19	Average: 9.59 p.m.
10.30 "	6	
11.00 "	7	
not answered	3	

6. Each week the time spent on outside pay job is:

Hours	boys
0	26
1	3
2	3
3	2
4	4
5	1
6	2
7	1
9	1
10	1
20	2
24	2
32	1
40	1

Extremes: 0 and 40 hours,
Average: 4 2/3 hours

7. Each week time spent on housework or errands is:

Hours	boys
0	9
1	5
2	6
3	9
4	4
5	2
6	1
8	4
9	1
10	5
12	1
14	1
22	1
30	1

Extremes: 0 and 30 hours,
Average: 8.9 hours

8. How many days have you been absent since school opened:

Days	boys
0	16
1	14
2	5
3	4
4	2
5	4
6	1
7	1
8	2
9	1

Extremes: 0 and 9 days,
Average: 2 1/25 days

9. Between leaving school and your evening meal do you usually:

	boys	per cent
study	28	35.44
be with friends or visit	4	5.06
work on a job	7	8.86

go downtown	5	6.34
rest or sleep	0	.00
go to shows	0	.00
stay outside, walking, or sports	16	20.25
read papers	1	1.27
items not answered	21	

10. When you go to bed you usually:

	boys	per cent
are physically tired and sleepy	20	42.55
are worn out	4	8.51
stop work before it is finished	2	4.26
feel like staying up longer	21	44.68
items not answered	3	

11. What tires you most during the day:

	boys	per cent
preparation of lessons	19	22.35
gym	8	9.41
dressing before and after gym	3	3.53
rushing around	24	28.24
tests	8	9.41
oral recitations	4	4.71
difficult lessons	18	21.18
lunch	1	1.18
items not answered	15	

9th GRADE GIRLS (42) AFTERNOON SESSION

Age:

Years	girls	per cent
13	6	14.29
14	17	40.48
15	13	30.95
16	6	14.29

Extremes: 13 yrs. and 16 yrs.
Average: 14 yrs., 5.4 mo's.

1. You usually get up on school mornings at:

Time	girls
7.00 A.M.	11
7.15 "	2
7.30 "	1
7.45 "	1
8.00 "	9
8.30 "	7
9.00 "	8
9.30 "	1
10.00 "	1
10.30 "	1

Extremes: 7.00 A.M. and 10.30 A.M.
Average: 8.06 A.M.

2. Before going to school you eat breakfast:

	girls	per cent
always	30	71.43
usually	10	23.81
seldom	2	4.76
never	0	.00

3. How many nights each week do you usually stay home:

Nights	girls
0	1

1	0
2	9
3	6
4	10
5	8
6	5
7	3

Extremes: 0 and 7 nights
Average: 4 nights

4. What time do you usually go to bed on school nights:

Hour	girls
8.30 p.m.	1
9.00 "	9
9.15 "	1
9.30 "	4
10.00 "	15
10.30 "	8
10.45 "	1
11.00 "	1
11.15 "	1
11.30 "	1

Extremes: 8.30 p.m. and 11.30 p.m.
Average: 9.53 p.m.

4A. Number of hours of sleep on school nights:

Hours	girls
$8\frac{1}{2}$	1
$8\frac{3}{4}$	1
9	4
$9\frac{1}{2}$	5
10	14
$10\frac{1}{4}$	1
$10\frac{1}{2}$	1
$10\frac{3}{4}$	4
11	7
$11\frac{3}{4}$	1
12	3

Extremes: $8\frac{1}{2}$ hrs. and 12 hrs.
Average: 10 hrs., 13 minutes

5. What time do you usually go to bed on Sunday nights:

Hour	girls
8.30 p.m.	1
9.00 "	2
9.30 "	5
10.00 "	12
10.30 "	8
10.45 "	1
11.00 "	8
11.30 "	4
12.15 A.M.	1

Extremes: 8.30 p.m. and 12.15 A.M.
Average: 10.29 p.m.

6. Each week the time spent on outside pay job is:

Hours	girls
0	37
1	1
6	2
14	1
21	1

Extremes: 0 and 21 hours
Average: 1 1/7 hrs.

7. Each week the time spent on housework or errands is:

Hours	girls	hours	girls
0	2	12	7
1	1	14	3

2	1	15	2
3	1	18	1
4	2	20	1
6	2	21	3
7	7	24	1
8	3	26	1
10	3		
11	1		
12	7		
14	3		

Extremes: 0 and 26 hours,
Average: 10 2/3 hrs.

8. How many days have you been absent since school opened:

Days	girls
0	27
1	9
2	2
3	1
4	2
5	1

Extremes: 0 and 5 days
Average: 7/10 days

9. Between leaving school and your evening meal do you usually:

	girls	per cent
study	29	37.18
be with friends or visit	3	3.85
work on a job	2	2.56
help at home	28	35.90
go down town	6	7.69
stay outside, walking, or sports	10	12.82
items not answered	6	

10. When you go to bed you usually:

	girls	per cent
are physically tired and sleepy	25	59.52
are worn out	3	7.14
stop work before it is finished	0	.00
feel like staying up longer	14	14.33

11. What tires you most during the day:

	girls	per cent
preparation of lessons	6	8.22
gym	1	1.37
dressing before and after gym	13	7.81
rushing around	21	28.77
tests	4	5.48
oral recitations	5	6.85
difficult lessons	21	28.77
lunch	2	2.74
items not checked	11	

10th GRADE GIRLS (176)
AFTERNOON SESSION

Age:

Years	girls	per cent
13	1	.61
14	54	32.93
14½	10	6.10
15	71	43.29
15½	4	2.44
16	18	10.98

16½	1	.61	Extremes: 13 yrs. and 19 yrs.
17	4	2.44	
19	1	.61	Average: 14 yrs., 10 mo's.
not answered	12		

1. You usually get up on school mornings at:

Time	girls
6.30 A.M.	1
7.00 "	24
7.30 "	15
7.45 "	3
8.00 "	58
8.15 "	1
8.30 "	14
9.00 "	38
9.15 "	2
9.30 "	7
10.00 "	10
10.30 "	1
not answered	2

Extremes: 6.30 A.M. and 10.30 A.M.
Average: 8.16 A.M.

2. Before going to school you eat breakfast:

	girls	per cent
always	132	76.30
usually	28	16.18
seldom	10	5.78
never	3	1.73
not answered	3	

3. How many nights each week do you usually stay home:

nights	girls
0	4
1	6
2	18
3	46
4	39
5	34
6	20
7	8
not answered	1

Extremes: 0 and 7 nights
Average: 3 9/10 nights

4. What time do you usually go to bed on school nights:

Hour	girls
8.00 p.m.	2
8.30 "	1
9.00 "	30
9.30 "	36
10.00 "	64
10.30 "	25
11.00 "	13
11.30 "	4
12.00 "	1

Extremes: 8.00 p.m. and 12.00 p.m.
Average: 9.53 p.m.

4A. Number of hours of sleep on school nights:

Hours	girls
7	1
8½	6
9	6
9½	18

$9\frac{3}{4}$	2
10	48
$10\frac{1}{4}$	1
$10\frac{1}{2}$	32
$10\frac{3}{4}$	1
11	36
$11\frac{1}{4}$	1
$11\frac{1}{2}$	15
12	3
$12\frac{1}{4}$	1
$12\frac{1}{2}$	1
13	2
not answered	2

Extremes: 7 hrs. and 13 hrs.
Average: 10 hrs., 23 minutes

5. What time do you usually go to bed on Sunday nights:

Hour	girls
8.30 p.m.	1
9.00 "	5
9.30 "	23
10.00 "	62
10.30 "	32
11.00 "	34
11.30 "	10
12.00 "	4
12.30 "	1
1.00 A.M.	1
not answered	3

Extremes: 8.30 p.m. and 1.00 A.M.
Average: 10.21 p.m.

6. Each week the time spent on outside pay job is:

Hours	girls
0	150
3	6
4	1
5	6
6	2
7	2
10	5
12	2
not answered	2

Extremes: 0 hrs. and 12 hrs.
Average: 1/10 hrs.

7. Each week time spent on housework or errands is:

Hours	girls	hours	girls
0	20	7	9
1	1	8	3
2	5	9	5
3	17	10	14
4	12	11	2
5	9	12	7
6	6	14	16
15	8	24	5
16	2	25	4
17	1	28	4
18	5	30	2
20	5	35	2
21	8	36	1
22	1	42	2

Extremes: 0 and 42 hours,
Average: 10 9/10 hrs.

8. How many days have you been absent since school opened:

Days	girls
0	82
1	28
2	20
3	22
4	7
5	6
6	1
7	3
8	2
10	3
14	3
20	1

Extremes: 0 and 20 days
Average: 1 7/10 days

9. Between leaving school and your evening meal do you usually:

	girls	per cent
study	93	32.18
be with friends or visit	17	5.88
work on a job	6	2.08
help at home	116	40.14
go downtown	15	5.19
rest or sleep	4	1.39
go to shows	0	.00
be outside, walking, or sports	30	10.38
help prepare supper	8	2.77
items not answered	63	

10. When you go to bed you usually:

	girls	per cent
are physically tired and sleepy	70	41.18
are worn out	10	5.88
stop work before it is finished	15	8.82
feel like staying up longer	75	44.12
not answered	6	

11. What tires you most during the day:

	girls	per cent
preparation of lessons	36	11.54
gym	17	5.45
dressing before and after gym	68	21.79
rushing around	51	16.35
tests	56	17.95
oral recitations	11	3.53
difficult lessons	70	22.44
lunch	3	.96
items not answered	40	

TABLE 2. COMPARISON OF MORNING SESSION BOYS

	9th GRADE	10th GRADE	11th GRADE	12th GRADE	Post Grad.	Composite High School
Average age	14 yrs.	15 yrs.	15 yrs. 11½	16 yrs. 10½	18 yrs.5mos	16 yrs. 3.7mo's
Time of Arising	7.05 A.M.	7.09 A.M.	7.08 A.M.	7.07 A.M.	7.13 A.M.	7.07 A.M.
Before going to school you eat breakfast:						
always	86.00%	86.93%	78.87%	79.33%	76.33%	81.76%
usually	14.00	12.06	17.84	13.33	23.68	15.09
seldom	.00	1.01	2.82	6.67	.00	2.83
never	.00	.00	.47	.67	.00	.31
How many nights each week do you usually stay home:	3 1/10	3 6/10	3 1/3	3 1/3	2 1/4	3 1/3
What time do you usually go to bed on school nights:	9.29 p.m.	9.43 p.m.	10.01 p.m.	10.13 p.m.	10.24 p.m.	9.57 p.m.
Number of hours of sleep on school nights:	9 hrs. 36"	9 hrs. 26"	9 hrs. 7"	8 hrs. 54"	8 hrs. 48"	9hrs. 10"
What time do you usually go to bed on Sunday nights:	9.40 p.m.	10.07 p.m.	10.27 p.m.	10.30 p.m.	10.48 p.m.	10.17 p.m.
Each week the time spent on outside pay job is:	3 1/7 hrs.	6 1/5 hrs.	8 hrs.	9½ hrs.	8 hrs.	7½ plus hrs.
Each week you help with housework or errands:	5.6 hrs.	4.6 hrs.	4.87 hrs.	4.4 hrs.	6 hrs.	5.6 hrs.
Number of days absent from school:	2½	1¾	2	2¼	1 1/3	2 days (-)
Between leaving school and your evening meal, do you usually:						
study	33.85%	36.93%	31.25%	32.62%	29.49"	33.39%
be with friends or visit	7.69	5.66	2.86	3.94	5.13	4.42
work on a job	1.54	14.29	18.49	18.64	14.10	15.97
help at home	16.92	9.43	12.76	11.83	21.79	12.32
go downtown	3.08	3.50	3.13	3.58	8.97	3.74
rest or sleep	3.08	.54	1.30	2.15	1.28	1.36

go to shows	.00	1.62	2.34	1.43	5.13	1.95
exercise outdoors	33.85	28.03	27.86	25.81	14.10	26.85
When going to bed, you usually:						
are tired and sleepy	64.71%	57.95%	53.99%	65.99%	60.00%	58.98%
are worn out	2.94	6.16	7.51	6.80	.00	6.20
stop work before finished	.00	6.67	3.29	6.80	.00	4.77
feel like staying up longer	32.35	29.23	35.21	20.41	40.00	30.05
What tires you most during the school day:						
preparation of lessons	9.52%	17.66%	24.42%	21.32%	19.05%	20.45%
gym	9.52	6.55	5.45	6.20	4.76	6.16
dressing (gym)	7.94	2.56	3.12	1.16	1.59	2.68
rushing around	31.75	25.93	22.08	24.42	30.16	24.82
tests	11.11	15.95	14.29	13.95	20.63	14.91
oral recitations	3.17	2.85	5.19	4.65	4.76	4.20
difficult lessons	22.22	28.21	24.96	25.58	15.87	25.45
lunch	4.76	.28	.52	1.55	.00	.89
working after school	.00	.00	.00	1.17	3.17	.45

TABLE 3. COMPARISON OF MORNING SESSION GIRLS

	9th GRADE	10th GRADE	11th GRADE	12th GRADE	Post. Grad.	Composite High School
Average age:	13 yrs.6mo's	14 yrs.9½	15 yrs.9mos.	16 yrs.7½	17 yrs.6mo's	15 yrs.6mo's.
Time of Arising	7.02 A.M.	7.05 A.M.	7.03 A.M.	7.05 A.M.	7.28 A.M.	7.04 A.M.
Before going to school you eat breakfast:						
always	80.00%	81.82%	73.60%	75.14%	77.78%	76.45%
usually	12.00	9.92	17.26	16.76	8.33	14.67
seldom	8.00	6.61	7.11	4.05	8.33	6.14
never	.00	1.65	2.03	4.05	5.56	2.72
How many nights each week do you usually stay home:	5½ nights	4¼ nights	3 3/4 nights	3 9/10 nights	3¼ nights	3.95 nights
What time do you usually go to bed on school nights:	9.29 p.m.	9.39 p.m.	10.00 p.m.	10.05 p.m.	10.25 p.m.	9.57 p.m.
What time do you usually go to bed on Sunday nights:	9.50 p.m.	9.48 p.m.	10.23 p.m.	10.33 p.m.	10.52 p.m.	10.19 p.m.

Number of hours of sleep on school nights:

9.50 p.m.	9.48 p.m.	10.23 p.m.	10.33 p.m.	10.52 p.m.	10.19 p.m.

Each week time spent on outside pay job is:

2 min.	1 hr.54"	3 2/5hrs.	3 hrs.26"	3 hrs.42"	2 hrs.57 minutes

Each week you help with housework or errands:

4 hrs.53"	6 hrs.53"	7 hrs.26"	7 hrs.8"	9 hrs.49"	7 hrs.15 minutes

Number of days absent from school:

9/10 days	1 1/3 days	2 3/10 days	1 2/3 days	3 2/5 days	1 9/10 days

Between leaving school and your evening meal do you usually:

study	45.83%	40.60%	40.75%	42.86%	13.43%	39.83%
visit- friends	8.33	11.54	6.70	6.03	23.88	8.78
work on a job	.00	3.85	6.70	8.25	4.48	6.08
help at home	20.83	11.11	21.72	18.41	16.42	17.94
go downtown	8.33	8.55	9.38	10.48	16.42	9.93
rest or sleep	.00	1.71	1.61	1.27	.00	1.35
go to shows	.00	5.13	2.68	3.17	10.45	3.76
exercise outdoors	16.67	17.09	10.46	9.21	14.93	12.15
clubs	.00	.43	.00	.00	.00	.10
work	.00	.00	.00	.32	.00	.10

When going to bed you usually:

are tired and sleepy	79.17%	68.97%	70.92%	66.29%	66.67%	69.12%
are worn out	12.50	6.90	2.04	6.86	3.03	5.15
stop work before finished	.00	3.45	2.55	1.14	.00	2.02
feel like staying up longer	8.33	20.69	24.49	25.71	30.30	23.71

What tires you most during the school day:

preparation of lessons	21.28%	18.43%	19.17%	21.98%	21.57%	20.14%
gym	17.02	5.53	2.78	3.41	.00	4.11
dressing (gym)	4.26	5.99	5.00	3.41	.00	4.41
rushing around	19.15	27.19	25.28	26.63	47.06	26.95
tests	12.77	17.05	13.89	16.72	13.73	15.43
oral recitations	2.13	2.30	6.11	1.52	.00	3.31
difficult lessons	23.40	23.50	27.22	25.39	13.73	24.95
lunch	.00	.00	.56	.62	3.92	.60
work	.00	.00	.00	.31	.00	.10

TABLE 4. COMPARISON OF AFTERNOON SESSION CLASSES

	9th GRADE BOYS	10th GRADE BOYS	9th GRADE GIRLS	10th GRADE GIRLS
Average age:	14yrs.4mo's	14 yrs.10mo's	14yrs.6mo's	14 yrs.10mo's
Time of arising	8.33 A.M.	8.11 A.M.	8.06 A.M.	8.16 A.M.
Before going to school you eat breakfast:				
always	88.89%	86.00%	71.43%	76.30%
usually	5.56	10.00	23.81	16.18
seldom	5.56	2.00	4.76	5.78
never	.00	2.00	.00	1.73
How many nights each week do you usually stay home:	3.9 nights	4.13 nights	4 nights	3.9 nights
What time do you usually go to bed on school nights:	9.31 p.m.	9.38 p.m.	9.53 p.m.	9.53 p.m.
Number of hours of sleep on school nights:	11 hrs.1"	10 hrs.23"	10 hrs.13"	10 hrs.23"
What time do you usually go to bed on Sunday nights:	9.22 p.m.	9.59 p.m.	10.29 p.m.	10.21 p.m.
Each week time spent on outside pay job is:	3 hrs.	4 2/3 hrs.	1 1/7hrs.	7/8 hrs.
Each week you help with housework or errands:	7½ hrs.	4.9 hrs.	10 2/3 hrs.	10 9/10 hrs.
Number of days absent from school:	1 1/6 days	2 days	.7 days	1.7 days

	9th GRADE BOYS	10th GRADE BOYS	9th GRADE GIRLS	10th GRADE GIRLS
Between leaving school and your evening meal do you usually:				
study	29.63%	35.44%	37.18%	32.18%
be with friends or visit	.00	5.06	3.85	5.88
work on a job	11.11	8.86	2.56	2.08
help at home	37.04	22.78	35.90	40.14
go downtown	.00	6.34	7.69	5.19
rest or sleep	.00	.00	.00	1.39
go to shows	.00	.00	.00	.00
stay outside, walking, or sports	22.22	20.25	12.82	10.38
read papers	.00	1.27	.00	.00
supper	.00	.00	.00	2.77
When going to bed you usually:				
are physically tired and sleepy	44.44%	42.55%	59.52%	41.18%
are worn out	11.11	8.51	7.14	5.88
stop work before it is finished	.00	4.26	.00	8.82
feel like staying up longer	44.44	44.68	33.33	44.12
What tires you most during the school day:				
preparation of lessons	17.86%	22.35%	8.22%	11.54%
gym	7.14	9.41	1.37	5.45
dressing before and after gym	10.71	3.53	17.81	21.79
rushing around	42.86	28.24	28.77	16.35
tests	7.14	9.41	5.48	17.95
oral recitations	.00	4.71	6.85	3.53
difficult lessons	14.29	21.18	28.77	22.44
lunch	.00	1.18	2.74	.96

DISCUSSION OF STATISTICAL DATA

COMPARISONS OF AGES OF BOYS AND GIRLS

The ages of all boys regardless of morning or afternoon sessions have been included in a computation of ages inasmuch as there would be but one morning session if accomodations were sufficient. The ages are distributed as follows:

Table 5. AGES OF BOYS

Age	pupils	percent
13 yrs.	12	1.90
14	108	17.06
15	154	24.33
16	151	23.85
16½	10	1.58
17	111	17.54
17½	10	1.58
18	53	8.37
18½	7	1.11
19	8	1.26
19½	1	.16
20	2	.32
over 20	6	.95
not answered	80	

Beginning with an average age of freshman boys of 14 years, the increments are 12, 11½, and 11 months. Post graduate boys average 18 years and 5 months.

The ages of girls are distributed as follows:

Table 6. AGES OF GIRLS

Age	pupils	percent
12 yrs.	5	.70
13	14	1.96
14	123	17.18
14½	21	2.93
15	211	29.47
15½	16	2.23
16	169	23.60
16½	4	.56
17	125	17.47
18	23	3.21
19	4	.56
over 20	1	.14
not answered	58	

Beginning with an average age of 13 years and 6 months, the incre-

ments are 15½, 11½, and 10 months. Post graduate girls average 17 years and 6 months.

The composite high school boy is 16 years, 3.7 months old in December and the composite high school girl, 15 years and 6 months old, a difference of 9.7 months. Excluding the post graduate and 9th grade students, the average age of boys in 10th, 11th, and 12th grades exceeds that of the girls by a little more than 2½ months. Keeping this fact in mind, we shall proceed to a discussion of MORNING SESSION PUPILS since they represent the majority of the students on the regular session plan.

TIME OF ARISING

There is little difference in the time at which the various classmen get up in the morning, the average being 7.07 A.M. Since the post graduate boy often does not have a first period class he gets up about six minutes later on the average. There are but 7.14 per cent of all boys who get up at 6.30 A.M. and before, distributed as follows:

Table 7. TIME OF ARISING (BOYS)

Time	pupils
4.15 A.M.	1
5.00 "	1
5.15 "	1
5.30 "	2
6.00 "	14
6.15 "	2
6.30 "	25

Since everyone of these pupils getting up at 6.00 A.M. or before spends more than seven hours per week on an outside pay job, we can assume that they are probably engaged in such work as delivering newspapers or peddling milk, which have been mentioned in the answers.

The average high school girl gets up at 7.04 A.M., three minutes earlier than the boy. The average post graduate girl does not get up until 7.28 A.M., twenty-four minutes later than her other classmates. Only 4.53 per cent get up at 6.30 A.M. or before, distributed as follows:

Table 8. TIME OF ARISING (GIRLS)

Time	pupils
5.30 A.M.	1
6.00 "	5
6.15 "	1
6.30 "	18

The girl who gets up at 5.30 A.M. works 24 hours on a pay job and 12 hours on housework per week; the five girls who get up at 6.00 A.M. and the girl who arises at 6.15 A.M. work from 8 to 18 hours per week at housework.

The average time for arising for all pupils is 7.05 A.M. The tardy bell rings at 8.20 A.M., thus allowing pupils an hour and a quarter to dress, eat breakfast, and get to school. Excepting two remote sections of the city, which involves fewer than twenty-five pupils, (1) all other pupils are within walking distance of the high school, that is, within a radius of one and one half miles. (2) It is apparent that the pupils, on the whole, get up early enough in order to allow adequate time for dressing, breakfast, and walking to school.

TIME OF RETIRING

The time of going to bed varies with the different classes. Beginning with the 9th grade boy who retires at 9.29 p.m., successive classes go to bed at 9.43 p.m., 10.01 p.m., 10.13 p.m., and 10.24 p.m., a fairly definite increment, ranging from 12 to 18 minutes. The composite high school boy retires at 9.57 p.m.

---

(1) Survey of Holyoke Schools by Columbia University, p. 145

(2) Map of Holyoke taken from Mansir's Guide, (Shown on next page)

The actual time of going to bed for all boys is distributed as follows:

TABLE 9. TIME OF RETIRING (BOYS)

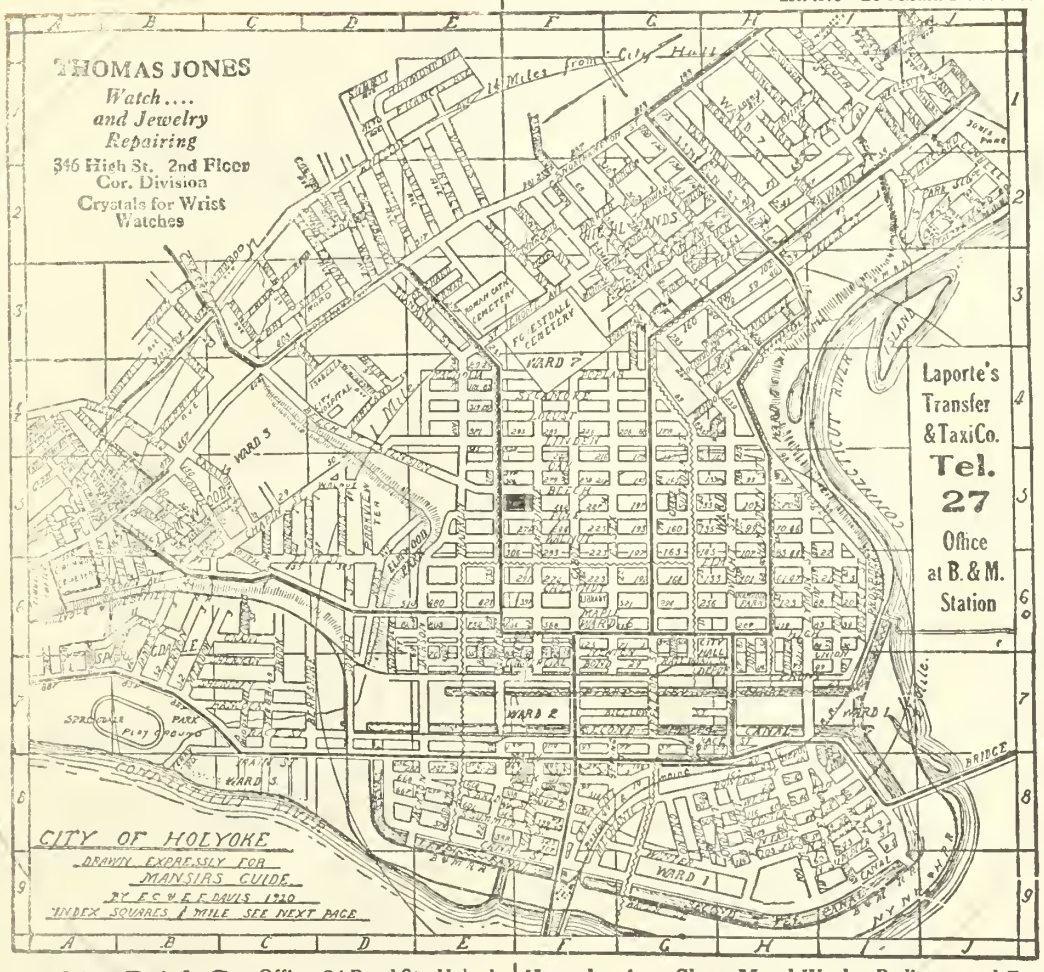
Time	Pupils	Per cent
9.00 p.m. and before	90	13.95
9.15 p.m.	7	1.09
9.30 "	133	20.62
9.45 "	2	.31
10.00 "	221	34.26
10.15 "	3	.47
10.30 "	114	17.67
10.45 "	6	.94
11.00 "	54	8.37
11.15 "	1	.16
11.30 " and after	14	2.17

The greater number of boys go to bed at 10.00 p.m., with 9.30 p.m., second choice, and 10.30 p.m., third. Only 2.17 per cent retire at 11.30 p.m. or after, that is, one of every fifty boys. On the other hand, 13.95 per cent go to bed at 9.00 p.m. or before, that is, one of every seven boys.

Beginning with the 9th grade girls who go to bed at 9.29 p.m., successive classes retire at 9.39 p.m., 10.00 p.m., 10.05 p.m., and 10.25 p.m. There is a constant increment ranging from 10 to 21 minutes. The composite high school girl retires at 9.57 p.m. The actual time of going to bed for all girls is distributed as follows:

TABLE 10. TIME OF RETIRING (GIRLS)

Time	Girls	Per cent
9.00 p.m. and before	53	9.60
9.15 p.m.	3	.54
9.30 "	130	23.55
9.45 "	5	.91
10.00 "	228	41.30
10.15 "	3	.54
10.30 "	78	14.13
11.00 "	41	7.43
11.30 p.m. and after	11	1.99
not answered	4	



MAP OF HOLYOKE

Shaded block shows location of Holyoke High School.

The greater number of girls go to bed at 10.00 p.m. with 9.30 p.m. second choice, and 10.30 p.m. third. Only 1.99 per cent go to bed at 11.30 p.m. or after, one girl of every fifty. 9.60 per cent retire at 9.00 p.m. or before, or one of every ten girls.

Attention is called to the marked similarity between the boys and girls insofar as the hour of going to bed is concerned. For both, 10.00 p.m. is first choice, 9.30 p.m. second, and 10.30 p.m. third. Again, only one of every fifty boys or girls goes to bed at 11.30 p.m. or after. A slightly higher percentage of boys than of girls retires at 9.00 p.m. or before. The time for both the composite high school boy and the high school girl is identical, 9.57 p.m.

The previous figures substantiate the fact that high school pupils retire on school nights at a reasonable hour. Only two per cent, approximately, show need of changing their time schedule so as to be in bed by eleven o'clock. None of the 9th grade or 10th grade pupils fall into this group, the group being made up of 56 per cent of post graduate students with an average age of eighteen years.

HOURS OF SLEEP ON SCHOOL NIGHTS

Pupils were not asked in the questionnaire to state how many hours of sleep they obtained on school nights. This was computed from the two items: "What time do you usually get up on school mornings?" and " What time do you usually go to bed on school nights?"

Beginning with the 9th grade boys who sleep 9 hours and 36 minutes, there is a constant decrease in the amount of sleep in successive classes: 9 hours, 26 minutes; 9 hours, 7 minutes; 8 hours, 54 minutes; and 8 hours, 48 minutes. The composite high

school boy sleeps 9 hours and 10 minutes.

The actual hours of sleep of all morning session boys is distributed as follows:

TABLE 11. HOURS OF SLEEP (BOYS)

Hours	Pupils	Per cent
Less than 8	20	3.11
8	37	5.74
8¼	3	.47
8½	89	13.82
8¾	20	3.11
9	170	26.40
9¼	22	3.42
9½	110	17.08
9¾	50	7.76
10	66	10.25
10¼	37	5.74
10½	11	1.70
11	9	1.40
Not answered	1	

In order of amounts the hours range as follows: 9; 9½; 8½, and 10. It is interesting to note that four of the five boys who get up from 4.15 A.M. to 5.30 A.M. make up their sleep in the afternoon. Only 3.15 per cent of all boys get less than eight hours of sleep on school nights, and this percentage is reduced to 2.00 when sleep made up in the afternoon is taken into the computation.

Beginning with the freshman girls, (9th grade) who average 9 hours and 30 minutes, there is likewise a constant decrease in successive classes of 9 hours, 26 minutes; 9 hours, 3 minutes; and 9 hours. The post graduate girl averages 9 hours and 3 minutes. The composite high school girl sleeps 9 hours and 7 minutes. The actual distribution of all morning session girls is:

TABLE 12. HOURS OF SLEEP (GIRLS)

Hours	Pupils	Per cent
Less than 8	4	.73
8	34	6.18
8¼	12	2.18
8½	49	8.91
8¾	33	6.00

TABLE 12. (continued)

Hours	Pupils	Per cent
9	165	30.00
9¼	54	9.82
9½	112	20.33
9¾	26	4.73
10	42	7.64
10¼	9	1.64
10½	2	.36
10¾	4	.73
11	3	.55
More than 11	1	.18
Not answered	6	

In order of amounts the hours range as follows: 9; 9½; 9¼; and 10. Of the four girls who receive less than eight hours of sleep, three are 12 th grade girls and one is a 11th grade girl. All of the seven girls getting up from 5.30 to 6.15 a.m. sleep 8½ hours or more.

"The number of hours needed for sleep varies with individuals. Some require much more than others. The amount needed can be determined by experiment. In general, it may be said of high school students that they require from nine to nine and a half hours of sleep." (1) "The following tabulation of the number of hours of sleep required at different ages is recommended": (2)

TABLE 13. RECOMMENDED HOURS OF SLEEP (WILLIAMS)

AGE	NIGHT TIME PERIOD	AFTERNOON NAP	TOTAL HOURS
4-6	6.00 or 7.00 P.M. to 7.00 A.M.	1 hour	13 or 14
6-8	7.00 or 8.00 P.M. to 7.00 A.M.	1 hour	12 or 13
8-10	7.30 or 8.00 P.M. to 7.00 A.M.	½ hour	11½ or 12
10-12	8.00 or 8.30 P.M. to 7.00 A.M.	½ hour	11 or 11½
12-14	8.30 or 9.00 P.M. to 7.00 A.M.		10 or 10½
14-16	9.00 or 9.30 P.M. to 7.00 A.M.		9½ or 10
16-18	9.30 or 10.00P.M. to 7.00 A.M.		9 or 9½
18 or over	10.00 or 11.00 P.M. to 7.00 A.M.		8 or 9

The 9th grade and 10th grade boys, averaging 14 and 15 years respectively, receive a trifle more or less than 9½ hours respectively; 11th grade boys who are just about 16 years old

(1) Andress, Aldinger, and Goldberger, Health Essentials, Ginn & Co., 1928, p.166

(2) J.F.Williams, Healthful Living,(Macmillan Co., N.Y. 1930) pp. 407-408

average 9 hours and 7 minutes; 12th grade boys who are almost 17 years old sleep six minutes less than the amount recommended; and post graduate boys who are over 18 years of age sleep 8¾ hours. The composite high school boy, 16 years,3.7 months, sleeps 9 hours and 10 minutes. Excepting the senior boys, all other boys fall within the prescribed limits of that amount recommended by Dr. Williams.

The 9th grade girls, 13½ years old, sleep one-half hour less than the amount recommended for their age; the 10th grade girls nearly equal the minimum requirements; and the 11th grade, 12th grade, and post graduate girls equal or exceed the minimum requirements recommended by Dr. Williams. The composite high school girl, 15 years and 6 months old, falls 23 minutes below the amount recommended for girls from 14-16 years, but exceeds by 7 minutes the minimum amount for girls of 16 years.

Brooks gives a table of the "ESTIMATED SLEEP NEEDS (IN HOURS) OF CHILDREN AT VARIOUS AGES (MEDIANS OF ESTIMATES BY DUKE, BERNHARD, HERTEL, CLAPAREDE, et al.) AND THE ACTUAL HOURS OF SLEEP OF 2692 AMERICAN SCHOOL CHILDREN." (1)

TABLE 14. (Data from Terman)

Age	13	14	15	16	17	18
Estimated need	9.8	9.3	9.	8.8	8.8	8.8
Actual amount, American school children	9.3	9.1	8.5	8.3	8.5	8.5

Compared with this table, every class of high school students exceeds both the estimated need and the actual amount of American school children.

The composite high school girl sleeps three minutes longer

(1) F.D.Brooks, The Hygiene of Adolescence, (Houghton Mifflin Co., 1929), p.503

than the composite high school girl. This is significant since he is 9.7 months older, and according to the recommended amount of sleep, should sleep less than the girl. The explanation probably lies in the fact that 26.85 per cent of the boys exercises outdoors after school as compared with only 12.15 per cent of the girls, and that persons exercising require more sleep than those who do not, in oder to replenish used up energy.

On the whole the sleep habits of the high school pupils are very satisfactory. Only between 1 and 2 per cent of the entire student body regularly obtains less than eight hours of sleep. By far the greater majority of students sleep from 9 to 10 hours.

TIME OF RETIRING ON SUNDAY NIGHTS

This item was included in the questionnaire to determine if there was any great departure on Sunday nights from the sleeping schedule on school nights.

In the case of the boys, the average 9th grade boy stays up 11 minutes longer on Sunday night than on school nights; the 10th grade boy, 24 minutes; the 11th grade boy, 26 minutes; the 12th grade boy, 36 minutes; and the post graduate boy, 24 minutes. The composite high school boy averages 20 minutes. Whereas on school nights 14 boys, or 2.17 per cent, go to bed at 11.30 p.m. or later, on Sunday nights, 60 boys, or 9.3 per cent, retire at 11.30 p.m. or later. It is interesting to note that the 11th and 12th grade boys show this tendency decidedly:

TABLE 15. TIME OF RETIRING ON SUNDAY NIGHTS (BOYS)

	Total Number	11.30 p.m.	12.p.m.	12.30A.M.	1.00A.M.	2.00A.M.
9th grade	26	0	0	0	0	0
10th grade	201	10	4	0	0	0
11th grade	216	10	10	0	1	0
12th grade	152	11	9	0	0	1
Post graduate	40	2	1	1	0	0

In the case of the girls the average 9th grade girl stays up 21 minutes longer on Sunday nights than on school nights; the 10th grade girl, 9 minutes; the 11th grade girl, 23 minutes; the 12th grade girl, 28 minutes; and the post graduate girl, 27 minutes. The composite high school girl averages 22 minutes. Whereas on school nights only 14 girls, or 1.99 per cent, retire at 11.30 p.m. or after, on Sunday night, 41 girls, or 7.4 per cent, retire at 11.30 p.m. or later. This tendency is most marked among the 12th grade and post graduate girls.

TABLE 16. TIME OF RETIRING ON SUNDAY NIGHTS (GIRLS)

Class	Total number of girls	11.30 p.m.	12.00 p.m.	12.30 a.m.
9th grade	26	1	0	0
10th grade	122	1	2	0
11th grade	197	7	4	1
12th grade	175	15	3	1
Post graduate	36	4	2	0

With the average student going to bed 21 minutes later on Sunday night and 101 students, or 8.3 per cent, remaining up until 11.30 p.m. or later, it is apparent that recitations on Monday morning suffer. No desire is expressed to condemn these 101 students, for unquestionably the senior high school offers a strenous program from which the student at times seeks to escape, but it might be a wise suggestion to transfer the evening of belated retiring from Sunday night to Friday or Saturday night so as to enable sleep to be made up on a morning other than a school morning.

BREAKFAST

No attempt has been made to go into the question of breakfasts other than to ascertain what percentage of the school body habitually eats or does not eat breakfast. Indeed, a study of the

types of breakfasts might well be a subject for a thesis. However, it is of value in this study to determine how many boys and girls come to school with some kind of breakfast to carry them through to the dismissal of school, 12.30 p.m. or 1.30 p.m.

For purposes of delimitation, "usually" has been construed as "always" and "seldom" as "never". Both 9th grade and post graduate boys score 100 per cent in having a breakfast; 10th grade boys, 98.99 per cent; 11th grade boys, 96.71 per cent; and 12th grade boys, 92.66 per cent. Only 1.01 per cent of the 10th grade boys and 3.29 per cent of the 11th grade boys do not eat a breakfast, but this percentage increases to 7.34 for senior boys. Expressed in another way, the actual numbers are as follows:

TABLE 17. BREAKFASTS (BOYS)

	Boys	Per Cent
Always	520	81.76
Usually	96	15.09
Seldom	18	2.83
Never	2	.31
Not answered	7	

No class of girls achieves 100 per cent. 92 per cent of the 9th grade, 91.74 per cent of the 10th grade, 90.86 per cent of the 11th grade, 91.90 per cent of the 12th grade, and 86.11 per cent of the post graduate girls habitually eat breakfast. The composite high school girl has a percentage of 91.12. Of the girls not eating breakfast there are 8.00 per cent of the 9th grade girls, 8.26 per cent of the 10th grade girls, 9.14 per cent of the 11th grade girls, 8.10 per cent of the 12th grade girls, and 13.89 per cent of the post graduate girls. The total percentage for all girls of the morning session is 8.86. A cross section of the same picture is expressed in the following tabulation:

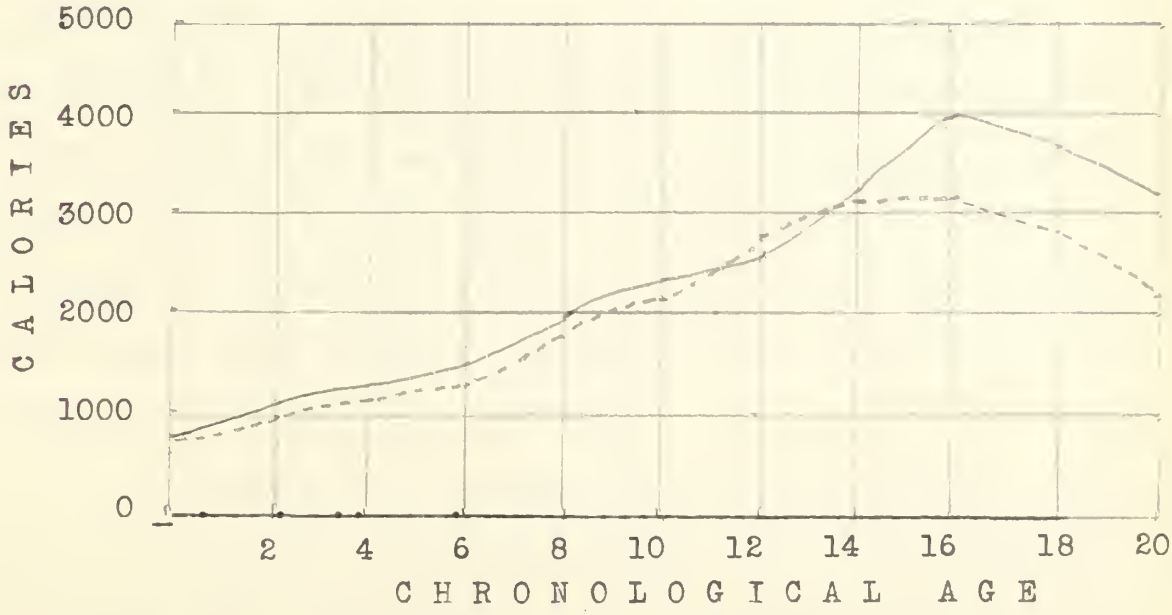
TABLE 18. BREAKFAST (GIRLS)

	Girls	Per cent
Always	422	76.45
Usually	81	14.67
Seldom	34	6.14
Never	15	2.72
Not answered	6	

All in all there are 20 boys, or 3.14 per cent, and 49 girls, or 8.86 per cent, who come to school unfortified by a breakfast to resist the demands that a strenuous high school program makes upon them.

The writer has searched in vain for some authorities who would substantiate the claim that adolescents need to eat a breakfast. The only information that seems available is the unanimous agreement of authorities that adolescents require more food than at any other period of life. Brooks says, "The total daily food needs are greater during early adolescence than they were at puberty, reaching a maximum at about fourteen for girls and sixteen for boys. The following table shows the daily amounts recommended by Holt for each age": (1)

FIGURE 1. CALORIES NEEDED AT DIFFERENT AGES



(1) L.Emmett Holt, Food, Health, and Growth (The Macmillan Co., N.Y.), p.73

In another study Holt concludes that: "After fourteen the allowance for boys is considerably greater than that for girls. The highest values for daily calories are 3330 for girls at the age of fourteen and 4100 for boys at the age of sixteen. After these maximum figures are reached the values drop very rapidly to adult requirements for moderate activity- about 2640 for women and 3360 for men." (1)

Regarding times for eating, Williams says, "Different nations have various habits of eating. The number of meals varies from two to five, or even eight meals daily. Such facts show the adaptability of the stomach to different habits. It is an organ which readily forms habits, and is greatly benefited by regularity. If a person avoids disturbing the stomach between meals and allows it needed rest, both appetite and digestion are promoted. Three meals a day seem to be needed, especially by hard workers." (2)

A check-up of the sixty-nine pupils not coming to school with a breakfast reveals that of the items causing fatigue, (two to be answered) 28 indicate preparation of lessons, 38, difficult lessons, and 50, rushing around. (Two items not answered.) These findings seem to indicate that perhaps the pupils' energy to pursue their studies was deficient, and that rushing around was closely correlated with a lack of sufficient nourishment. Undoubtedly, most of these sixty-nine pupils, instead of drawing their energy from physical nourishment are deriving it at the expense of their nervous stability.

It can reasonably be concluded that these pupils would do well to reorganize their eating habits so as to distribute more

---

(1) L.Emett Holt, Food, Health, and Growth (The Macmillan Co., N.Y., 1927), p.73

(2) J.F.Williams, Healthful Living (The Macmillan Co., N.Y. 1930), pp. 272-273.

equitably during the school day the energy supplied through nourishment. Furthermore, the percentage, 8.86, seems to be too high for adolescents, who, on account of being in the most critical physical period of their lives, should pay more than an average amount of attention to their health practices.

NIGHTS EACH WEEK PUPILS STAY HOME

9th grade boys stay home 3 1/10 nights per week; 10th grade boys, 3 6/10; 11th grade boys, 3 1/3; 12th grade boys, 3 1/3; and post graduate boys, 2 1/4. The composite high school boy averages 3 1/3 nights. Classified according to the number of evenings stayed home, the tabulation is as follows:

TABLE 19. NIGHTS EACH WEEK PUPILS STAY HOME (BOYS)

	Nights								
Class	0	1	2	3	4	5	6	7	not answered
9th grade	3	2	6	7	12	4	1	0	1
10th grade	2	8	50	37	48	36	10	10	0
11th grade	14	14	36	52	43	31	16	7	3
12th grade	13	12	19	34	34	21	12	4	3
Post graduate	6	1	10	9	6	3	3	0	2
Total	38	37	121	139	143	95	42	21	9
Per cent	5.97	5.82	19.03	21.86	22.49	14.94	6.60	3.30	

There are 38 boys who do not stay home any night during the week; 37 boys who stay home one night during the week; and 121 boys who stay home only two nights. 196 boys, or 30.82 per cent of the entire number of boys, stay home two nights or less. The 10th grade boys have the best showing, 3 6/10 nights, and the 11th grade and 12th grade boys follow with 3 1/3 nights each. As is to be expected, the post graduate boys stay home the fewest evenings, 45 per cent of them remaining at home two nights or less.

During the week 9th grade girls stay home $5\frac{1}{2}$ nights; 10th grade, $4\frac{1}{4}$; 11th grade, 3 $\frac{3}{4}$; 12th grade, 3 9/10; and post graduates, $3\frac{1}{4}$ nights. The composite high school girl averages 3.95 Classified according to the number of evenings stayed home the tabulation is as follows:

TABLE 20. NIGHTS EACH WEEK PUPILS STAY HOME (GIRLS)

Class	Nights 0	1	2	3	4	5	6	7	Not answered
9th grade	0	0	0	0	6	8	4	7	1
10th grade	1	3	7	12	43	40	9	4	3
11th grade	2	4	25	44	68	40	5	5	4
12th grade	0	3	18	46	53	38	9	5	3
Post grad.	3	4	5	6	8	7	2	1	0
Total	6	14	55	108	178	133	29	22	11
Per cent	1.10	2.57	10.09	19.82	32.66	24.40	5.32	4.04	

There are six girls who do not stay at home any night during the week; 14 girls who stay home one night; and 55 girls who stay home two nights. 75 girls, or 13.76 per cent, stay home two nights or less during the week. 9th grade girls lead with $5\frac{1}{2}$ nights, but that is just natural, since they are the youngest group, averaging 13 years and 6 months. 10th grade girls average $4\frac{1}{4}$ nights, and 11th grade girls, $3\frac{3}{4}$ nights. There is an increase in the 12th grade girls, 3 9/10 nights, due to the fact that 112 girls, or 64 per cent, carry an additional subject. The post graduate girls stay home only 3 $\frac{3}{4}$ nights,- they are almost a year older than the 12th grade girls and have fewer lessons.

With the many diversions offered the adolescent boys and girls, it is indeed surprising that the number of nights stayed home, 3 1/3 for the boys and almost 4 for the girls, is as large as it is. No attempt has been made to have the pupils designate

in what manner they spend the evenings at home, but it is safe to assume that part of the evenings is spent in study.

HOURS ON OUTSIDE PAY JOB PER WEEK

During the week the time spent on outside pay jobs for boys is: 9th grade, 3 1/7 hrs.;10th grade, 6 1/5 hrs.; 11th grade, 8 hrs.; 12th grade, 9½ hrs.; and post graduates, 8 hrs. The average for the composite high school boy is 7½ hours, plus. A classification of boys according to the number of hours employed each week sheds more light on the subject:

TABLE 21. HOURS ON OUTSIDE PAY JOB (BOYS)

	Hours							over
Class	none	1-5	6-10	11-15	16-20	21-25	26-30	30
9 th grade	22	5	4	3	2	0	0	0
10th grade	104	27	23	14	8	11	4	6
11th grade	111	16	25	16	12	11	14	9
12th grade	64	14	24	10	12	8	11	9
Post grad's	18	3	4	7	5	2	0	1
Total	319	65	80	50	39	32	29	25
Per cent	49.94	10.17	12.52	7.82	6.10	5.01	4.54	3.91

It is significant that more than one-half of the boys are employed in some gainful occupation outside of school. 27.38 per cent, or more than one-fourth of the boys, work from 11 to 30 hours, an average of from two to more than four hours daily. 13.46 per cent, or nearly one of every seven boys works more than twenty hours per week. There is a constant increase in the percentage of employment from the 9th to the 12th grade.

During the week the time spent on outside pay jobs for girls is: 9th grade, 2 minutes; 10th grade, 1 hr., 54 minutes; 11th grade, 3 hrs., 24 minutes; 12th grade, 3 hrs., 26 minutes; and post graduates, 3 hrs., 57 minutes. A classification of the girls according to the number of hours gainfully employed is herewith given:

TABLE 22. HOURS ON OUTSIDE PAY JOB (GIRLS)

				Hours				over	not ans
Class	none	1-5	6-10	11-15	16-20	21-25	26-30	30	
9 th grade	25	1	0	0	0	0	0	0	0
10th grade	101	11	4	2	0	3	0	1	0
11th grade	135	26	13	8	7	2	5	1	0
12th grade	131	11	9	10	4	2	2	6	0
Post grad's	28	1	3	1	0	0	0	2	1
Total	420	50	29	21	11	7	7	10	1
Per cent	75.68		5.23		1.98		1.26		
		9.01		3.78		1.26		1.80	

Over three-fourths of the girls are not engaged in any gainful occupation. 10.08 per cent, or just about one-tenth of all the girls, work from 11 to 30 hours, an average of from two to four or more hours daily. 4.32 per cent, or one of every twenty-three girls works more than twenty hours per week.

A comparison of the boys and girls in respect to outside employment reveals the fact, when computed in hours, that the boys work two and one-half times as much. Compared with numbers, three boys are gainfully employed to every two girls, and over three times as many boys as girls are working more than twenty hours per week.

Taking a cross section of the entire student body, boys and girls combined, 241 of 1210, or one of every five pupils is engaged in a gainful occupation requiring more than two hours of time daily. This fact is startling in that it indicates such a large percentage of the pupils, who finance, in part or in whole, their education. It is a reflection on the desirability of the value of an education and speaks well of the youth who is willing to do his share and to make sacrifices in order to possess more than an elementary or junior high school preparation for life.

AMOUNT OF TIME SPENT ON RUNNING ERRANDS
OR HELPING WITH HOUSEWORK PER WEEK

No attempt was made to distinguish between the items of running errands or helping with housework, since some boys help with household chores, as wiping dishes and dusting, and some girls have to go to the store and do shopping. The question might have aptly been phrased, "How many hours do you help at home?" but the answers on the questionnaires indicated that the pupils interpreted the question correctly.

With the boys there is no decided progression. 9th grade boys help 5.6 hours; 10th grade, 4.6 hrs., 11th grade, 4.87 hrs., 12th grade, 4.4 hrs., and post graduates, 6 hrs. The average for the composite high school boy is 5.6 hours. Distributed over the various classes the figures are as follows:

TABLE 23. TIME SPENT ON RUNNING ERRANDS OR HELPING WITH HOUSEWORK (BOYS)

Class	none	Hours 1-5	6-10	11-15	16-20	21-25	26-30	over 30	not ans.
9 th grade	4	17	11	1	2	1	0	0	0
10th grade	30	114	34	12	2	3	0	0	6
11th grade	35	115	44	8	5	2	2	0	5
12th grade	31	74	38	6	2	0	1	0	0
Post grad's	6	17	12	4	0	0	0	1	0
Total	106	337	139	31	11	6	3	1	11
Per cent	16.72	53.15	21.92	4.89	1.74	.95	.47	.16	

106 boys or about 1/6 of the entire number do not help at all with housework or errands. 52 boys, or 1/12 of the total number, help or run errands for more than ten hours per week, but only 10 boys, or 1.58 per cent, help more than twenty hours. 53.15 per cent, or more than half of the number, help from 1 to 5 hours, and 21.92 per cent help from 6 to 10 hours. 476 boys, or 3/4 of the total number, help from 1 to 10 hours.

With the exception of the 12th grade girls there is a constant increase in the amount of time spent on housework or errands by girls from the freshman (9th grade) to the post graduates. The

9th grade girls help 4 hrs., 53 minutes; 10th grade, 6 hrs., 53 minutes; 11th grade, 7 hrs., 26 minutes; 12th grade, 7 hrs., 8 minutes; and post graduates, 9 hrs., 49 minutes. The composite high school girl helps 7 hrs., 15 minutes. Distributed over the various classes the figures are as follows:

TABLE 24. TIME RUNNING ERRANDS AND HELPING WITH HOUSEWORK (GIRLS)

	Hours								
Class	none	1-5	6-10	11-15	16-20	21-25	26-30	over 30	not ans'd
9 th grade	3	14	6	3	0	0	0	0	0
10th grade	10	57	28	11	7	5	1	1	2
11th grade	17	78	59	26	6	7	3	1	0
12th grade	14	59	62	27	7	4	1	0	1
Post grad's	1	12	8	4	3	2	2	1	3
Total	45	220	163	71	23	18	7	3	6
Per cent	8.18	40.00	29.64	12.91	4.18	3.27	1.27	.55	

Forty-five girls, or 1.18 per cent (one girl of every twelve), do not help at all with housework or errands. 122 girls, or 23.18 per cent (almost one girl of every four), help more than 10 hours per week; and 28 girls, or 5.09 per cent, help more than twenty hours. 40.00 per cent help 1 to 5 hours, 29.64 per cent, 6 to 10, and 12.91 per cent, 11 to 15. In other words, over 4.5 of the entire number of girls help from 1 to 15 hours.

A comparison of the girls with the boys shows that twice as many boys as girls do not help at all with housework or errands. On the average three times as many girls as boys help more than ten hours per week, and the same ratio holds for more than twenty hours or more. 3/4 of the boys help from 1 to 10 hours but 4/5 of the girls from 1 to 15 hours. It is natural that girls show a larger number helping and also a greater number of hours.

ABSENCE

The average number of days absent for the composite high

school boy is not quite 2 days. Classes do not vary much from the mean. The 9th grade boys average $2\frac{1}{2}$ days; 10th grade, $1\frac{3}{4}$; 11th grade, 2; 12th grade, $2\frac{1}{4}$; and post graduates, 1 1/3 days. A cross section of the absences is given in the following table:

TABLE 25. DAYS ABSENT (BOYS)

Class	0	1	2	3	4	5	6	7	8	9	10	10
9th Grade	14	6	2	3	1	4	2	1	1	1	1	0
10th Grade	94	28	32	17	9	6	1	2	4	2	0	6
11th Grade	106	33	29	13	4	6	6	3	2	0	2	10
12th Grade	66	28	19	11	8	6	2	1	0	1	4	6
Post Grad's	22	5	4	3	3	2	0	0	0	1	0	0
Total	302	100	86	47	25	24	11	7	7	5	7	22
Per cent	46.97	15.55	13.37	7.31	3.90	3.73	1.71	1.09	1.09	.78	1.09	3.42

not answered.....2

46.97 per cent, or nearly half of the boys, have not missed any school days from September 14th to December 17th, a period of three months. 43.86 per cent, or nearly 4/9 of the boys have been absent from one to five days; 5.76 per cent, or 1 of 18 boys, have been absent from six to ten days; and 3.42 per cent, or 1 of 29 boys, have been absent more than ten days.

The average number of days absent for the composite high school girl is 1.9 days. There is a constant increase in the amount of absence from the 9th grade to the post graduate girl with the exception of the 12th grade girl. The 9th grade girl is absent 9/10 days; 10th grade, 1 1/3 days; 11th grade, 2 3/10 days; and the post graduate, 3 2/5 days. A cross section of the absences is given in the following table:

TABLE 26. DAYS ABSENT (GIRLS)

Class	0	1	2	3	4	5	6	7	8	9	10	10
9 th grade	19	4	0	1	0	1	0	0	0	0	1	0
10th grade	59	30	6	11	3	5	7	1	0	0	0	0
11th grade	90	29	22	18	16	3	3	6	2	1	3	4
12th grade	73	32	22	13	13	14	5	1	1	0	1	0
Post grad's	8	10	6	1	1	0	4	2	1	0	1	2
Total	249	105	56	44	33	23	19	10	4	1	6	6
Per cent	44.79	18.85	10.07	7.92	5.94	4.14	3.42	1.80	.72	.18	1.08	1.08

44.79 per cent, or just about 4/9 of the girls, have not missed any school days in the three months. 46.92 per cent, or slightly more than 4/9 of the girls, have been absent from one to five days; 7.20 per cent, or one of fourteen girls, have been absent from 6 to 10 days; and 1.08 per cent, or 1 of 92 girls, have been absent more than 10 days.

A slightly higher percentage of boys compared with girls have not been absent any days, and a slightly lower percentage have been absent from 1 to 5 days. Compared on a basis of 0 days to 5 days absent, boys and girls, involving over 90 per cent of the entire student body, are nearly on even terms. The boys have a lower percentage from 6 to 10 days, but a higher percentage of over 10 days when compared with the girls. The conclusion is that there is not much difference in the absences of boys and girls.

DIVERSIONS BETWEEN LEAVING SCHOOL AND THE EVENING MEAL (TABLE 27)
(Two items to be marked on the list)

Composite High School BOY	per cent	Composite High School GIRLS	per cent
1. Study	33.39	1. Study	39.83
2. Be with friends or visit	4.42	2. Be with friends or visit	8.78
3. Work on a job	15.97	3. Work on a job	6.08
4. Help at home (errands)	12.32	4. Help at home	17.94
5. Go downtown	3.74	5. Go downtown	9.93
6. Rest or sleep	1.36	6. Rest or sleep	1.35
7. Go to shows	1.95	7. Go to shows	3.76
8. Exercise outdoors	26.85	8. Exercise outdoors	12.15

9. Clubs	.10
10. Work	.10

CONSIDERATION OF THE VARIOUS ITEMS IN DETAIL
(See tables 2 and 3, pages 46-47)

STUDY

For all classes of boys, study heads the list with approximately 1/3 of the answers indicating that boys put in some time on their lessons. Percentages are strikingly similar: 9th grade boys, 33.85; 10th grade, 36.93; 11th grade, 31.25; 12th grade, 32.62; and post graduates, 29.49.

With the exception of the post graduate girls, who do not carry such a heavy program as the other classes, study likewise heads the list for girls. Again, percentages are very similar: 9th grade girls, 45.83; 10th grade, 40.60; 11th grade, 40.75; 12th grade, 42.86; and post graduates, 13.42. (5th on the list)

Considering that boys stay home 3 1/3 nights and girls almost 4 nights every week, and that on the nights stayed home pupils do some studying (not determined accurately but safely permissible to assume), it is within the province of this study to state that boys and girls take their lessons seriously and endeavor to pay considerable attention to their preparation.

2. SPEND TIME OUTSIDE, WALKING, OR SPORTS.

The composite high school places this item second on the list. 3.85 per cent of the 9th grade boys place it first (tied with study); 28.03 per cent of the 10th grade place it second; 27.86 per cent of the 11th grade, second; 25.81 per

cent of the 12th grade, second; and 14.10 per cent of the post graduates, third. The composite high school girl places it third on the list. There is considerably less of uniformity in the percentages of the girls: 16.67 per cent of the 9th grade place it 3rd; 17.09 per cent of the 10th grade, 2nd; 10.46 per cent of the 11th grade, 3rd; 9.21 per cent of the 12th grade, 4th. Investigation of the 10th grade girls has disclosed that they have a very strong leaning toward athletics and set the pace for the high school girls, both in the percentage of girls reporting for extra-curricular activities and for the calibre of the work achieved.

Every section of the city from which the senior high school draws its school enrollment is equipped with athletic fields for the continuance of neuro-muscular skills taught both in the junior and senior high schools. It is gratifying to note that the findings substantiate the report of the Director of Health and Physical Education that there must be a carry-over of physical education if its aims are to be realized. (1)

3. WORK ON A JOB

The composite high school boy averages 15.97 per cent and places "working on a job" third on the list. Excepting 9th grade boys who place it 7th on the list with 1.54 per cent, other classes are rather uniform: 10th grade boys place it third with 18.49 per cent; 11th grade boys, third with 14.29 per cent; 12th grade boys, 3rd with 18.64 per cent; and post graduates, 3rd with 14.10 per cent.

The composite high school girl places "working on a job"

---

(1) Annual Report of Public Schools, Holyoke, Mass., 1930, p.76

sixth with a percentage of 6.08. 9th grade girls spend no time on an outside job: 10th grade girls place it seventh with 3.85 per cent; 11th grade girls, 5th with 6.70 per cent; 12th grade girls, fifth with 8.25 per cent; and post graduate girls, seventh with 4.48 per cent.

That boys place this item third on the list,and girls, sixth, is in harmony with the findings on page (69) that three boys are gainfully employed to every two girls and that boys work two and one half times as many hours as girls.

4. HELP AT HOME OR RUN ERRANDS.

The composite high school boy places this item fourth with 12.32 per cent. Figures differ widely in this tabulation. 9th grade boys place it third with 16.92 per cent; 10th grade boys, 4th with 9.43; 11th grade boys, 4th with 12.76; 12th grade boys, 4th with 11.83; and post graduates, 2nd with 21.79.

The composite high school girl places "helping at home" second on the list with 17.94 per cent. Excepting the 11th grade girls who place it 4th with 11.11 per cent (it will be remembered that the 11th grade girls spend a large amount of time for sports) all other classes place it second: 9th grade girls, 20.83 per cent; 11th grade girls, 21.72; 12th grade girls, 18.41; and post graduates, 16.42. That such a large percentage of girls helps at home reflects credit on the domestic science department for it indicates that there is a definite carry-over value.

5. BE WITH FRIENDS OR VISIT

Both the composite high school boy and the composite high school girl place being with friends or visiting fifth on the

list; the former, with 4.42 per cent, and the latter, with 8.78 per cent. There is no uniformity in the percentages: Boys: 9th grade, 4th with 7.69 per cent; 10th grade, 5th with 5.66; 11th grade, 6th with 2.86; 12th grade, 5th with 3.94; and post graduates, 6th with 5.13. Girls: 9th grade, 4th with 8.33; 10th grade, 35d with 11.54; 11th grade, 5th with 6.70; 12th grade, 6th with 6.03; and post graduates, 1st with 23.88. That post graduate girls place "visiting" first on the list is easily explained, considering the large amount of time on their hands.

The percentage of girls who like to indulge in visiting or be with friends is just about double that of the boys.

6. GO DOWNTOWN.

The composite high school boy places "going downtown" 6th with 3.74 per cent; the girl, on the other hand, places it 4th with 9.93 per cent. Excepting the post graduate boys who place going downtown 5th on the list with 8.97 per cent, there is more or less uniformity: 9th grade boys, 5th with 3.08 per cent, 10th grade, 6th with 3.50; 11th grade, 5th with 3.13; and 12th grade, 6th with 3.58. 9th grade girls place it 4th on the list with 8.33 per cent; 10th grade, 5th with 8.55 per cent; 11th grade, 4th with 9.38; 12th grade, 3rd with 10.48; and post graduates, 2nd with 16.42. With the girls there is a constant increase in percentage and an inverse order of placement, from 5th to 2nd.

7. GO TO SHOWS.

Both the composite high school boy and the composite high school girl place this item seventh; the former, averaging 1.95

per cent and the latter, 3.76 per cent. The 9th grade boys place it 8th or last with no per cent; 10th grade boys, 7th with 1.62; 11th grade, 7th with 2.34; 12th grade, 8th with 1.43; and post graduates, 6th with 5.13. The 9th grade girls likewise place it last on the list with zero per cent; 10th grade girls, 6th with 5.13; 11th grade, 7th with 2.68; 12th grade, 7th with 3.17; and post graduates, 6th with 10.45.

The lowest percentage for the entire student body is found in the 9th grade class which averages zero. The post graduate class averages the highest, one of every twenty boys and one of every ten girls attending shows in the afternoon. Tabulation of percentages show that about twice as many girls as boys prefer this diversion. That only one of every 51 boys and one of every 27 girls frequent the movies must come as a distinct surprise. These figures certainly upset the prevalent notion that high school students flock in large numbers to the movies. There are four moving picture theaters within a fifteen minute walk from the high school. If pupils were inclined to frequent the movies, every opportunity is afforded them in various types of shows at moderate prices. There is no question but that the depression accounts, to some extent, for the low percentage. However, it is not unjustifiable to conclude that many students prefer to spend their leisure in study, in work or helping at home, or in outdoor play.

8.REST OR SLEEP.

Both the composite high school boy and the composite high school girl, there being little difference between the boys and girls, the former averaging 1.36 per cent and the latter, 1.35

place "rest or sleep" last on the list. 9th grade boys lead the list with 3.08 per cent; 10th grade, .54; 11th grade, 1.30; 12th grade, 2.15; and post graduates, 1.28. All girls place it last; 9th grade, with zero per cent; 10th grade, 1.71; 11th grade, 1.61; 12th grade, 1.27; and post graduates, zero. But one pupil of every 74 rests or sleeps during the afternoon. This group is made up mostly of boys and girls who get up unusually early. It speaks well of their health practices, for they seek to make up some sleep occasioned by their early arising.

9. CLUBS AND WORK

One sophomore girl mentions "clubs" and one senior girl mentions "work". These items are quoted only to make up the deficiency in the percentage of the eight items listed in the questionnaire.

TABLE 28. DISCUSSION OF THE ITEMS ON "WHAT TIRES YOU MOST DURING THE SCHOOL DAY?"
(Two items to be marked on the list)

Listed in order of percentages, the various items are as follows:

BOYS	per cent	GIRLS	per cent
1. Difficult lessons	25.45	1. Rushing around	26.95
2. Rushing around	24.82	2. Difficult lessons	24.95
3. Preparation of lessons	20.45	3. Preparation of lessons	20.14
4. Tests	14.91	4. Tests	15.43
5. Gym	6.16	5. Dressing (gym)	4.41
6. Oral recitations	4.20	6. Gym	4.11
7. Dressing before & after gym	2.68	7. Oral recitations	3.31
8. Lunch	.89	8. Lunch	.60
9. Working after school	.45	9. Working after school	.10

There is a striking similarity in the order of items and also in the percentages. Boys place "difficult lessons" first,

closely followed by "rushing around"; girls place "rushing around" first, closely followed by "difficult lessons". Both place "preparation of lessons", third; and tests, fourth. These four items comprise about 5/6 of the total percentages. Boys place "gym", 5th; "oral recitations", 6th; and "dressing before and after gym", 7th; girls place "dressing before and after gym", 5th; "gym", 6th, and "oral recitations", 7th. Both place "lunch" 8th and "working after school" (not mentioned on the questionnaire) last.

DIFFICULT LESSONS

10th grade boys with 28.21 per cent, 11th grade boys with 24.96 per cent and 12th grade boys with 25.58 per cent place "difficult lessons" first on the list. 9th grade boys with 22.22 per cent place it second, and post graduates with 15.84 per cent place it fourth. The composite high school boy with 25.45 per cent places it first.

9th grade girls with 23.40 per cent, and 11th grade girls with 27.22 per cent place it first on the list; 10th grade girls with 23.50 per cent and 12th grade girls with 25.39 per cent place it second; and post graduate girls with 13.73 per cent place it third. The composite high school girl places it second with 24.95 per cent.

Practically one-fourth of the entire student body declares that "difficult lessons" are a source of fatigue to them. There is a distinction made between "difficult lessons" and "preparation of lessons". In the former the student is perplexed with his assignments in specific subjects. In many cases, the distinct subject which is difficult is mentioned on the questionnaire.

In the latter, the student is not bothered with specific difficulties but rather in the amount of work that must be prepared.

The conclusion may be aptly drawn that many students are pursuing subjects which give them difficulty. This difficulty may be caused by an inability to grasp the subject material, lack of foundation, or perhaps inaptitude to pursue the subject in question. Most certainly it calls for more individual attention on the part of the teacher, or perhaps wise counseling. In our high school we have no appointed counselor. Moreover, since the classes average at least forty pupils, it becomes exceedingly difficult to give individual instruction. If 9th grades or 10th grades were the only classes to place "difficult lessons" so high on the list, we might infer that the entering students were bothered with adjustment to the senior high school program, but both 11th and 12th grade students place it either first or second. Without question, these figures reveal that the matter of pupil adjustment should be given careful attention by those in charge of administration, teaching, and preparation of course of study.

RUSHING AROUND.

9th grade boys place "rushing around" first with 31.75 per cent; 10th grade boys, second with 25.93 per cent; 11th grade boys, third with 22.08 per cent; 12th grade boys, second with 24.42 per cent; and post graduate boys, first with 30.16 per cent. The composite high school boy places it second with 24.82 per cent. 9th grade girls place it third with 19.15 per cent; 10th grade girls, first with 27.19 per cent; 11th grade girls, second with 25.28; 12th grade girls, first

with 26.63; and post graduates, first with 47.06. The composite high school girl places it first on the list with 26.95 per cent.

Comparative figures of the 10th, 11th, 12th, and post graduate boys and girls show a correlation. The difference between 9th grade boys, 31.75 per cent, and 9th grade girls, 19.15 per cent, is not readily explainable. Post graduate boys have the highest percentage, 30.16, and likewise, also post graduate girls with 47.06. Both post graduate boys and girls show more than double the inclination to go downtown and go to shows as compared with other classmen. Further, post graduate girls place "be with friends or visit" first on the list. Inasmuch as post graduate students do not have so many studies as the other classmen, the school routine cannot tire them to any great extent. We may rightfully conclude that it is the outside activities that tire them mostly. It seems as though they might more profitably budget their time. On the other hand, the school routine, coupled with the demands for home assignments and difficulty of lessons, is a source of much fatigue to the great bulk of students.

PREPARATION OF LESSONS

9th grade boys place "preparation of lessons" 4th with 9.52 per cent; 10th grade boys, 3rd with 17.66; 11th grade boys, 2nd with 24.42; 12th grade boys, 3rd with 21.32; and post graduate boys, 3rd with 19.05. The composite high school boy places it 3rd with 20.45 per cent. 9th grade girls place it second with 21.28 per cent; 10th grade girls, 3rd with 18.43; 11th grade girls, 3rd with 19.17; 12th grade girls, 3rd with 21.98; and post graduate girls, 2nd with 21.57. The composite high

school girl places it third with 20.14 per cent.

Of all the items which cause fatigue, no other item can lay any more legitimate claim than "preparation of lessons." Education demands effort on the part of the individual wishing to acquire it. It seems logical that in a list such as submitted to the students that preparation of lessons should demand its exacting amount of study, coupled with a proportionate amount of fatigue. With "difficult lessons" first on the list for boys and "preparation of lessons" third, and with "difficult lessons" second on the list for girls and "preparation of lessons" third, and with study overwhelmingly the first consideration of between leaving school and the evening meal, it is apparent that high school students, both boys and girls, apply themselves rather diligently to their lessons.

TESTS

Tests occupy the fourth position with the composite high school boy, averaging 14.91 per cent. 9th grade boys place them 3rd with 11.11 per cent; 10th grade boys, 4th with 15.95; 11th grade boys, 4th with 14.29; 12th grade boys, 4th with 13.95; and post graduate boys, 2nd with 20.63. They likewise occupy fourth place with the composite high school girl, averaging 15.43 per cent. 9th grade girls place them 5th on the list with 12.77 per cent; 10th grade girls, 4th with 17.05; 11th grade girls, 4th with 13.89; 12th grade girls, 4th with 16.72; and post graduate girls, 3rd with 13.73. The averages for both the composite high school boy and the composite high school girl are strikingly similar; 14.91 per cent for the former and

15.95 for the latter.

Although there is considerable difference of opinion among educators as to the number of tests and the amount of time to be expended for the same, it must be admitted that tests offer one of the best means of serving the individual child. Wilson and Hoke contend that "While the regular use of measurement in the schoolroom is one of the most distinctive marks of a professional viewpoint, it is not the only requirement. The leaders of the National Education Association undoubtedly hold the vision of a teaching profession that shall be as fully trained and as fully accepted by laymen as is the medical profession at its best to-day. When that vision is realized, the teaching of subjects as such will be recognized as comparable to the selling of patent medicines as such. As it is not the medicine but the individual and his ailment that must receive first consideration, so it is the child and his needs, and not the subject, which must receive the first consideration of the teacher. The psychology needed is an individual one. The former experiences of the child must be made to contribute to new and broader experiences. The testing done must be for the purpose of individual diagnosis. In the hands of the professionally equipped teacher, the child becomes the true center of school work." (1)

Both achievement tests and diagnostic tests are used by the high school teachers; in fact, both types of tests are used throughout the entire school system. The low percentage of pupils fatigued by tests shows that high school students, on

---

(1) Wilson and Hoke, How to Measure, (The Macmillan Co.) p. 6

the whole, have become accustomed to the use of tests. That they accept tests as a matter of course is evidenced by the fact that approximately only 1/7 of the entire student body displays any fatigue in being subjected to them.

GYMNASIUM

The high school gymnasium is located in a different building from the high school. It is necessary for the pupils to walk about 100 yards and to cross a main artery of traffic in order to get from the main building to the gymnasium. This is not pleasant on wintry days and in rainy weather. Undoubtedly this inconvenience enters somewhat into the attitude that certain pupils have toward gymnasium work. Just what percentages find "gym" fatiguing on account of having to undergo the inconvenience of going outdoors in all kinds of weather has not been determined.

The composite high school boy places "gym" 5th on the list with 6.16 per cent. The 9th grade boy places it 4th with 9.52 per cent; the 10th grade boy, 5th with 6.55; the 11th grade boy, 5th with 5.45; the 12th grade boy, 5th with 6.20; and the post graduate boy, 5th with 4.76. The composite high school girl places it 6th on the list with 4.11 per cent. The 9th grade girls places it 4th with 17.02 per cent; the 10th grade girls, 6th with 5.53; the 11th grade girls, 7th with 2.78; the 12th grade girls, 5th with 3.41; and the post graduate girls, last with zero per cent.

9th grade boys average 9.52 per cent, the next highest percentage being attained by the 10th grade boys, 6.55. 9th grade girls average 17.02 per cent, the next highest percent-

age being attained by the 10th grade girls, 5.53. Just why such a larger proportion of 9th grade girls find "gym" fatiguing may be ascribed to the fact that they are assigned to any gym period which may be in session at that time. Thus, they may be enrolled with classes consisting of 10th grade, 11th grade, and 12th grade pupils. (This scheme has been necessary this year on account of the enlarged enrollment and the two session plan.) It is possible that some 9th grade pupils experience fatigue on account of the embarrassment of being placed in classes with upper classmen, and it is possible that in order to appear "grown-up" they overdo physically.

There is a popular notion among educators that an attractive physical education program should appeal to each and every boy and girl, or expressed in other words, it must function 100 per cent. The committee of physical education (Joint Committee of the National Education Association and the American Medical Association) states:"Pupils should know how to play the games and sports listed in Chapter IV, Section J, Physical Education, and should develop along lines of meeting the following standards:

"Grades 10, 11, and 12-Boys

1. Should spend at least 1½ hours daily in out-of-door active play.

Grades 10, 11, and 12-Girls

1. Should spend at least 1½ hours daily in out-of-door active play." (1)

It has been the experience of the writer during the twenty

---

(1) Health Education, Joint Report of the N.E.A. and A.M.A. p. 212 (525 West 120th St. N.Y. 1930)

years of observation of boys and girls from grade 1 to 12 inclusive, both in the gymnasium and on the playground, that there are some pupils who possess either little interest or inclination to play. This percentage is very small in the younger children but increases through the grades, becoming more common among junior and senior high school students. Figures of this study would tend to refute this statement inasmuch as the percentages of fatigue are higher for the lower classmen. However, the percentages are for fatigue and not for interest. We cannot escape the fact that the younger classmen probably outdo themselves when placed side by side with older pupils whom they strive to emulate.

That there should be any percentages at all would likewise tend to show that the physical education program falls down in respect to the recreative side. The Massachusetts State Law makes physical education compulsory. In other words, it compels the physically indolent boy and girl to take part in a program which requires effort. Naturally, participation in any type of activity requiring exertion is, for these pupils, work, and as such, is accompanied with fatigue. Moreover, we must also consider the fact that there are many boys and girls who are members of the student body simply because the law compels them to be. Some of them, of course, are likewise apt to find expenditure of effort of any kind fatiguing.

Considering the fact that the upper classmen exhibit such small percentages of fatigue, it would indicate that on the whole, physical education succeeds in achieving satisfactory

results.

ORAL RECITATIONS

The composite high school boy places the item, "oral recitations", 6th on the list with a percentage of 4.20. 9th grade boys place it 8th, or last on the list, with 3.17 per cent; 10th grade boys, 6th with 2.85; 11th grade boys, 6th with 5.19; 12th grade boys, 6th with 4.65; and post graduate boys, 8th or last with 4.76. The composite high school girl places it 7th on the list with 3.31 per cent. 9th grade girls place it 7th with 2.13 per cent; 10th grade girls, 7th with 2.30; 11th grade girls, 5th with 6.11; 12th grade girls, 7th with 1.52 per cent; and post graduate girls, 8th with zero per cent.

Excepting the 11th grade girls, who place it 5th, all other classes place it 6th, 7th, or 8th on the list. The conclusion is herewith drawn that on the whole oral recitations are not very fatiguing, the average for the entire student body being approximately 4.00 per cent. This may be attributed to the fact that in the junior high schools the pupils receive much opportunity to express themselves in the "socialized recitation". Burton says of the contribution lesson (socialized used interchangeably): ".....In reporting the pupil must organize his material so that it will be of interest to his audience. He will receive training in clear expression and in self-confidence. During the reports, questions should be asked, and afterwards there should be a free give- and- take discussion. Such a discussion, stimulated and guided by the teacher, is a widely different procedure from the old-time recitation of iso-

lated facts. In the hands of a skilled teacher, it is one of the most efficient teaching devices, though it is often difficult for the beginner. Its merit is, obviously, in the stimulation of the thinking processes, interest, and initiative of the pupils. It is a sad commentary on teaching that it takes some little time to make children understand that they may express opinions, argue and debate , question, and ask for further information. The very highest type of training is being given when pupils are stimulated to participate and advance opinions, and are held for evidence and proof; when they become interested enough in their own arguments to hunt up further evidence,-and to organize it for presentation; where there is free interchange of idea." (1)

DRESSING BEFORE AND AFTER GYM

The composite high school boy places this item 7th on the list with 2.68 per cent. 9th grade boys place it 6th with 7.94 per cent; 10th grade boys, 7th with 2.56; 11th grade boys, 7th with 3.12; 12th grade boys, 8th with 1.16; and post graduate boys, 7th with 1.59. The 9th grade girl places it 6th with 4.26 per cent; the 10th grade, 5th with 5.99; the 11th grade 6th with 5.00; the 12th grade, 5th with 3.41; and the post graduate, 8th with zero per cent.

As is to be expected the high school girl shows a considerably higher percentage than the high school boy, since she pays more attention to details of dress. As the gymnasium period is but fifty minutes long and if there is much to be accomplished, the time for dressing before and after the gymnasium period must

---

(1) F.D. Burton, The Nature and Direction of Learning(Houghton Mifflin Co. 1929), p. 376.

needs be short. If the periods were fifty-four minutes as in previous years under the normal schedule, perhaps this percentage would be smaller. Be it as it may, dressing before and after "gym" is as necessary a detail to gymnasium work as are tests in the regular school routine. It cannot be eliminated.

LUNCH

This year there is no regular lunch period at school. Pupils in the morning session are dismissed at 12.30 p.m. This means that they arrive home perhaps after the family noon-day meal. Consultation with many pupils has revealed the fact that they often have to prepare their own lunch. After an arduous morning at school such procedure is apt to be fatiguing. Despite this fact, the percentages are relatively low. The composite high school boys place lunch last on the list with .89 per cent. The 9th grade boys place it 7th with 4.76 per cent; the 10th grade boys, 8th with .28; the 11th grade boys, 8th with .52; the 12th grade boys, 8th with 1.17; and the post graduate boys, 6th with 3.17. The composite high school girl places it last with .60 per cent. The 9th grade and 10th grade girls report no percentage; the 11th grade girls, .56 per cent; the 12th grade girls, 1.62; and the post graduate girls, 3.92 per cent.

Every class except the post graduate girls and the 9th grade boys shows a low percentage. Post graduate girls, not carrying the regular schedule, perhaps arrive home in time to assist in getting the noon-day meal ready, and thus show a percentage which places "lunch" 5th on the list. No reason can be ascribed for the high percentage of 9th grade boys, except those mentioned above. But ten boys and six girls of a total number of 1211 report this item.

WORKING AFTER SCHOOL

"Working after school" was not included in the questionnaire, but three 12th grade boys, two post graduate boys, and one 12th grade girl mentioned it. Had the item appeared on the questionnaire, the percentage would have undoubtedly been greater. However, on the other hand, if "working on a job" or " working at home" had been excessively fatiguing, more than six pupils would have mentioned it. As the percentages, boys, .45 and girls, .10 are so small we may regard this item as negligible.

REACTION UPON GOING TO BED

A comparison of boys, girls, and items reveals the following:

TABLE 29. REACTION UPON GOING TO BED

	Boys		Girls	
	Number	Per cent	Number	Per cent
Are physically tired and sleepy	371	58.98	376	69.12
Are worn out	39	6.20	28	5.15
Stop work before it is finished	30	4.77	11	2.02
Feel like staying up longer	189	30.05	129	23.71

Both boys and girls list "physically tired and sleepy " first; "feel like staying up longer " second; "worn out" third; and "stop work before it is finished" fourth.

All classes place "physically tired and sleepy" first on the list: 9th grade boys, 64.71 per cent; 10th grade boys, 57.95; 11th grade boys, 53.99; 12th grade boys, 65.99; post graduate boys, 60.00; 9th grade girls, 79.17; 10th grade girls, 68.97; 11th grade girls, 70.92; 12th grade girls, 66.29; and post graduate girls, 66.67. Nearly six of every ten boys and seven of every ten girls state that they are physically tired upon going to bed. A search for correlations with outdoor exercise and with study reveals no definite correlation. The conclusion is drawn that <u>all activities during the day</u> contribute to a general physical

feeling of tiredness.

With the exception of the 9th grade girls, all other classes place "feel like staying up longer" second: 9th grade boys, 32.35 per cent; 10th grade boys, 29.23; 11th grade boys, 35.21; 12th grade boys, 20.41; post graduate boys, 40.00; 9th grade girls, 8.33; 10th grade girls, 20.69; 11th grade girls, 24.49; 12th grade girls, 25.71; and post graduate girls, 30.30. With the girls a progressive increase in percentages is noted from the 9th grade to the post graduate; with the boys no such progression exists. No items were found which showed any correlation. In general, three of every ten boys and one of every four girls feel like staying up longer.

In regard to the item "worn out" the composite high school boy averages 6.20 per cent. The 9th grade boys place it 3rd with 2.94 per cent; the 10th grade boys, 4th with 6.16; the 11th grade boys, 3rd with 7.51; the 12th grade boys, 3rd with 6.80; and the post graduate boys, 4th with zero per cent. The composite high school girl places it 3rd with 5.15 per cent. The 9th grade girls place it 2nd with 12.50 per cent; the 10th grade girls, 3rd with 6.90; the 11th grade girls, 4th with 2.04; the 12th grade girls, 3rd with 6.86; and the post graduate girls, 3rd with 3.03. The 9th grade girl shows two and one-half times the average percentage for the composite high school girl. This may be attributed to the fact that she is only 13 years and 6 months old and without question feels the strain of the strenuous program.

Tyler has arrived at the following conclusions in regard to the growth of girls. "Growth usually falls to a minimum at ten. Her period of acceleration covers the twelfth to the fourteenth

years. The decline in the fifteenth year is sometimes abrupt, sometimes gradual." (1) In the boy the period of greatest growth comes later and lasts over a longer period. "In the thirteenth year, more rarely in the twelfth, a marked acceleration begins, and lasts about four years." (2) This undoubtedly has a bearing on the higher percentages of boys. Another source of fatigue is social life. "The greatest danger is from too much and too intense social life. Excitement is always fatiguing, if not exhausting, to the young. The late hours and loss of sleep rob the body of strength even faster than severe study. Whether the last years of the high-school course are too crowded for the best and most healthy mental development of our boys and girls is quite a different question. This can be answered only by experienced observers." (3) This study has proven definitely that late hours and loss of sleep are not the primary cause of fatigue: the causes are to be found rather in physical growth and the tendency of adolescents to overdo generally.

One of every sixteen boys and one of every twenty-four girls are worn out at the end of the day. It might be well for the teachers and the physical education teachers to attempt to detect pupils who appear to tire easily and question them in regard to their programs and their health habits with a view of relieving the condition of exhaustion.

STOP WORK BEFORE IT IS FINISHED

The composite high school boy averages 4.77 per cent. Both the 9th grade and the post graduate boys show zero per cent. 10th grade boys average 6.67 per cent; 11th grade boys, 3.29; and 12th grade boys, 6.80. It is apparent that 10th grade and

---

(1) J.M.Tyler, Growth and Education (Houghton Mifflin Company, N.Y., 1907), p.65

(2) Ibid. p.64 (3) Ibid. p.183

12th grade boys do not budget their time well. The composite high school girl averages only 2.02 per cent. Coincident with the boys, 9th grade and post graduate girls have a percentage of zero. 10th grade girls average 3.45 per cent; 11th grade girls, 2.55; and 12th grade girls, 1.14.

A comparison of the percentages of boys and girls shows that boys are inclined to defer tasks until the last minute and then leave them uncompleted because it is time to go to bed, either voluntarily or under compulsion.

The low percentages likewise show that only a small minority are offenders in this respect. Of all the items under this heading, however, this one permits of being reduced to zero per cent or nearly so. The thirty boys and eleven girls who constitute this minority should be advised to plan their time more wisely.

PART 11

A COMPARISON OF MORNING SESSION AND AFTERNOON SESSION PUPILS

MORNING SESSION AND AFTERNOON SESSION CLASSES COMPARED

The actual number of questionnaires filled out by afternoon session pupils is as follows:

TABLE 30. QUESTIONNAIRE (AFTERNOON SESSION)

Boys:	9th grade.....18		
	10th grade.....50		
		Total.....68	
Girls:	9th grade.....42		
	10th grade.....176		
		Total.....218	
			Grand total..286

As has been previously mentioned, all these pupils are taking the commercial course.

The actual number of questionnaires filled out by morning session pupils is as follows:

TABLE 31. QUESTIONNAIRE (MORNING SESSION)

Boys:	9th grade.....36		
	10th grade.....201		
		Total.....237	
Girls:	9th grade.....26		
	10th grade.....122		
		Total.....148	
			Grand total..385

These pupils are enrolled in the college preparatory, technical preparatory, or general course.

Age: The average age of the afternoon session 9th grade boys is 14 years, 4 months, and of the 10th grade boys, 14 years and 10 months, as compared with the average morning session 9th grade boys, 14 years, and 10th grade boys, 15 years.

The average age of the afternoon 9th grade girls is 14 years, 6 months, and of the 10th grade girls, 14 years, 10 months, as compared with the morning session 9th grade girls,

13 years, 6 months, and the 10th grade girls, 14 years, 9½ months.

TIME OF ARISING

Afternoon session 9th grade boys get up at 8.33 A.M., and 10th grade boys at 8.11 A.M. as compared with morning session 9th grade boys, 7.05 A.M. and 10th grade boys, 7.09 A.M. Of the sixty-eight afternoon session boys, one gets up at 4.30 A.M., one at 5.00 A.M., and one at 5.30 A.M. The remainder arises after 6.30 A.M. The average for the morning session 9th grade and 10th grade boys is 7.07 A.M. and for the afternoon session 9th grade and 10th grade boys, 8.22 A.M. In other words, the afternoon session boy gets up one hour and fifteen minutes later than his morning session classmate.

Afternoon session 9th grade girls get up at 8.06 A.M. and 10th grade girls at 8.16 A.M. as compared with the morning session 9th grade girls, 7.02 A.M. and 10th grade girls, 7.05 A.M. Of the 218 afternoon session girls, only one girl, or .46 per cent, gets up at 6.30 A.M. or earlier. The average time for arising for morning session 9th grade and 10th grade girls is 7.04 A.M. and for the afternoon session 9th grade and 10th grade girls, 8.12 A.M. In other words, the afternoon group gets up one hour and eight minutes later than the corresponding morning group.

TIME OF RETIRING

The average afternoon session 9th grade boys goes to bed at 9.31 p.m. and the 10th grade boy at 9.38 p.m. Corresponding morning morning session boys retire at 9.29 p.m. and 9.43 p.m. It will be noted that on the whole the morning session group retires a few minutes later than the afternoon group.

Actual time of going to bed for the afternoon boys is herewith given:

TABLE 32. TIME OF RETIRING (AFTERNOON BOYS)

Time	Boys	Per cent
9.00 p.m. and before	21	30.88
9.15 "	1	1.47
9.30 "	14	20.59
9.45 "	1	1.47
10.00 "	24	35.29
10.15 "	1	1.47
10.30 "	4	5.88
11.00 "	2	2.94

Only seven boys, 10.29 per cent, or one of every ten boys, go to bed after 10.00 p.m.

The average afternoon 9th grade girl goes to bed at 9.53 p.m. and the 10th grade girl at the same hour, 9.53 p.m. Corresponding morning session girls retire at 9.29 p.m. and at 9.39 p.m. Morning session girls go to bed 19 minutes earlier than afternoon session girls. The actual time of going to bed for afternoon session girls is:

TABLE 33. TIME OF RETIRING (AFTERNOON GIRLS)

Time	girls	Per cent
9.00 p.m. and before	43	19.73
9.15 "	1	.46
9.30 "	40	18.35
10.00 "	79	36.24
10.30 "	33	15.14
10.45 "	1	.46
11.00 "	14	6.42
11.15 "	1	.46
11.30 "	6	2.75

Fifty-five girls, 25.23 per cent, or one of every four girls, go to bed after 10.00 p.m. This is two and one-half times the percentage of afternoon session boys. On the whole, afternoon session girls retire nineteen minutes later than the boys.

HOURS OF SLEEP ON SCHOOL NIGHTS

The actual hours that afternoon session boys sleep are as follows:

TABLE 34. SLEEP (HOURS) ON SCHOOL NIGHTS (AFTERNOON BOYS)

Hours	boys	per cent
Less than 8	2	2.94
$8\frac{1}{4}$	1	1.47
$9\frac{1}{2}$	6	8.82
10	12	17.65
$10\frac{1}{2}$	14	20.59
$10\frac{3}{4}$	1	1.47
11	15	22.06
$11\frac{1}{2}$	9	13.24
12	1	1.47
$12\frac{1}{2}$	6	8.82
13	1	1.47

The average amount of sleep for afternoon session 9th grade boys is 11 hours and 1 minute, and for 10th grade boys, 10 hours and 23 minutes. Corresponding hours for morning session boys are 9 hours, 36 minutes, and 9 hours, 26 minutes, thus making a difference in favor of the afternoon session 9th grade boys of one hour and twenty-five minutes and of 10th grade boys, 57 minutes.

The actual number of hours that afternoon session girls sleep is:

TABLE 35. HOURS OF SLEEP ON SCHOOL NIGHTS (AFTERNOON GIRLS)

Hours	girls	per cent
7	1	.46
$8\frac{1}{2}$	7	3.24
$8\frac{3}{4}$	1	.46
9	10	4.63
$9\frac{1}{2}$	23	10.65
$9\frac{3}{4}$	2	.93
10	62	28.70
$10\frac{1}{4}$	2	.93
$10\frac{1}{2}$	33	15.28
$10\frac{3}{4}$	5	2.31
11	43	19.91
$11\frac{1}{4}$	1	.46
$11\frac{1}{2}$	15	6.94
$11\frac{3}{4}$	1	.46
12	6	2.78

$12\frac{1}{4}$	1	.46
$12\frac{1}{2}$	1	.46
13	2	.93
not answered	2	

The average amount of sleep for afternoon session 9th grade girls is 10 hours, 13 minutes, and for 10th grade girls, 10 hours, 23 minutes. Corresponding hours for morning session girls are 9 hrs., 30 minutes and 9 hrs., 26 minutes, thus making a difference in favor of afternoon 9th grade girls of 43 minutes, and of 10th grade girls, 56 minutes.

In the aggregate, afternoon session pupils sleep fully one hour more than morning session pupils. Compared with the tables of estimated sleep needs, page 59, they sleep much more than they actually need to.

DISCUSSION OF SLEEP NEEDS.

"Is sleep, taken in too big doses, a drug which dulls the intellect and fills the body with poisons? Dr. Fred A. Moss, professor of psychology at George Washington University, Washington, D.C., believes that this conclusion <u>may</u> result from data gathered by a test during which the experimenter and eight of his students subjected themselves to an ordeal of sixty slumberless hours." (1) While this article does not arrive at any definite conclusion in regard to an excess amount of sleep, it hints at the possibility that many of us can get along with less sleep without any injurious results.

Mr. H.M. Johnson, of the Mellon Institute of Industrial Research, University of Pittsburgh, says, "An overlong stay in bed seems to set up the habit of relaxation which persists

---

(1) F.A. Moss, <u>Do We Sleep Too Much</u>, Literary Digest, September 19, 1925

several hours into the working day. While it lasts one has entirely too much composure for immediate work; it is too hard to excite one; but if this condition is a sign of adequate cell-repair and of relative freedom from toxicity it means a heightened readiness for future demands." (1) Stating the opposite side of the question he adds, "However, most of us, if we keep free from constipation, and from accumulation of gas in the stomach and duodenum, if we employ a bed which permits a maximum number of comfortable postures, and if we cultivate the habit of relaxation with the same business-like care we should devote to the study of music, will get enough sleep in the course of six and one-half hours to nine hours to equip us for the day, and to make the day's work enjoyable. Sleep, as we have pointed out, is a necessity no less than a luxury. Over indulgence in sleeping is possible. It is vicious when it interferes with more interesting activities." (2)

The average afternoon session boys sleep 10 hours and 40 minutes, and the average afternoon session girl, 10 hours and 21 minutes. That this amount of sleep does not fortify these pupils to resist fatigue is evidenced by the fact that all classes place "rushing around" first on the list. (10th grade girls place it 4th but with the item, "gym" to be explained later, it would also be first)

The morning session pupils meet the requirements of "sleep needed" and have an additional hour to spend in diversions that are probably just as restful as but decidedly more

---

(1) H.M. Johnson, Is Sleep A Vicious Habit?, Harpers Monthly Magazine, November, 1928

(2) Ibid..

profitable than the practice of turning over in bed and catching another wink of sleep after Nature's requirements have been met.

TIME OF RETIRING ON SUNDAY NIGHT

Afternoon session 9th grade boys go to bed at 9.22 p.m. on Sunday nights, and 10th grade boys at 9.59 p.m. The average of all afternoon session boys is 9.49 p.m. Morning session 9th grade boys retire at 9.40 p.m. and 10th grade boys at 10.07 p.m., the average being 10.00 p.m. Afternoon session 9th grade girls retire at 10.29 p.m. and 10th grade girls at 10.21 p.m., the average being 10.22 p.m. Morning session 9th grade girls go to bed at 9.50 p.m. on Sunday nights, and 10th grade girls at 9.48., the average being 9.49 p.m.

Afternoon session boys go to bed 11 minutes earlier than the morning session boys, but the reverse is true of the girls: the afternoon session girls retire 33 minutes later than the morning session girls. However, the afternoon session girls evidently suffer no ill effects of retiring so much later as they can sleep longer on Monday morning.

BREAKFAST

88.89 per cent of afternoon session 9th grade boys always eat breakfast; 5.56 per cent, usually; 5.56 per cent, seldom; and zero per cent, never. 86.00 per cent of afternoon session 10th grade boys eat breakfast always; 10.00 per cent, usually; 2.00 per cent, seldom; and 2.00 per cent, never. A cross section of pupils and percentages is herewith given:

TABLE 36. BREAKFAST (AFTERNOON BOYS)

	boys	per cent
Always	59	86.76
Usually	6	8.82
Seldom	2	2.94
Never	0	.00
Not answered	1	

71.43 per cent of afternoon session 9th grade girls eat breakfast always; 23.81 per cent, usually; 4.76 per cent, seldom; and zero per cent, never. 76.30 per cent of afternoon session 10th grade girls eat breakfast always; 16.18 per cent, usually; 5.78 per cent, seldom; and 1.73 per cent, never. A cross section of pupils and percentages is as follows:

TABLE 37. BREAKFAST (AFTERNOON GIRLS)

	girls	per cent
Always	162	75.37
Usually	38	17.67
Seldom	12	5.58
Never	3	1.38
Not answered	3	

Only .50 per cent of morning session boys do not eat breakfast as compared with 2.94 per cent of afternoon session boys; but 8.13 per cent of morning session girls do not eat breakfast as compared with 6.96 per cent of afternoon session girls. Taken as a whole, however, there is little variation in the percentages of morning and afternoon pupils, which leads to the conclusion that whether pupils attend either the morning or afternoon session, this fact has little bearing as to whether or not they eat or do not eat a breakfast.

NIGHTS EACH WEEK PUPILS STAY HOME

Afternoon session 9th grade boys average 3.9 nights at home and 10th grade boys, 4.13 nights, as compared with corresponding morning session classes: 3.1 and 3.6; afternoon session 9th grade girls average 4 nights and 10th grade girls,

3.9 nights, as compared with morning session girls: $5\frac{1}{2}$ and $4\frac{1}{2}$. Afternoon session boys spend a slightly higher percentage of evenings at home than do the morning session boys, but this condition is reversed with the girls. Differences, however, are not sufficient to warrant a conclusion that there is any great variance in either session.

TIME SPENT ON OUTSIDE PAY JOB

The time that afternoon session students spend on outside pay jobs as compared with morning session students is herewith tabulated:

TABLE 38. TIME SPENT ON OUTSIDE PAY JOB (AFTERNOON SESSION BOYS)

	Hours							over
Class	none	1-5	6-10	11-15	16-20	21-25	26-30	30
9th grade	13	3	0	0	0	0	1	0
10th grade	26	13	5	0	1	4	0	2
Total	39	16	5	0	1	4	1	2
Per cent	57.35	23.53	7.35	0	1.47	5.88	1.47	2.94
			MORNING SESSION BOYS					
9th grade	22	5	4	3	2	0	0	0
10th grade	104	27	23	14	8	11	4	6
Total	126	32	27	17	10	11	4	6
Per cent	54.08	13.73	11.59	7.30	4.29	4.72	1.71	2.57

Of the afternoon session boys, 80.88 per cent do not work at all on a pay job or work less than six hours, whereas of the morning session boys, only 67.81 per cent do not work at all or work less than six hours. Again, 19.11 per cent of the morning session boys work from 6 to 30 hours or over, but 32.18 per cent of the morning session boys work 6 to 30 hours or over. These figures indicate clearly that not only do more morning session boys work but also that they work longer hours.

TABLE 39. TIME SPENT ON OUTSIDE PAY JOB

AFTERNOON SESSION GIRLS

	Hours								
Class	none	1-5	6-10	11-15	16-20	21-25	26-30	over 30	not ans
9th grade	37	1	2	1	0	1	0	0	0
10th grade	150	13	9	2	0	0	0	0	2
Total	187	14	11	3	0	1	0	0	2
Per cent	86.57	6.48	5.09	1.39	0	.46	0	0	0
MORNING SESSION									
9th grade	22	5	4	3	2	0	0	0	0
10th grade	104	27	23	14	8	11	4	6	0
Total	126	32	27	17	10	11	4	6	0
Per cent	54.08	13.73	11.59	7.30	4.29	4.72	1.72	2.57	0

Of the afternoon session girls, 93.05 per cent do not work at all or work less than 6 hours, whereas of the morning session girls, only 67.81 per cent do not work at all or work less than 6 hours. Again, 6.94 per cent of the afternoon session girls work from 6 to 30 hours. Like the boys, the evidence is conclusive that more morning session girls work and that they work longer hours.

All other factors equal, we may conclude that the morning session permits boys and girls to find gainful jobs more readily than the afternoon session. This has always been the contention of the principal of the high school who has steadfastly opposed extending the session beyond 1.40 p.m. so that pupils who choose to work may do so.

AMOUNT OF TIME SPENT RUNNING ERRANDS OR HELPING WITH HOUSEWORK

Comparative figures of morning session boys and afternoon session boys indicate the following:

TABLE 40. AFTERNOON SESSION BOYS

Class	Hours none	1-5	6-10	11-15	16-20	21-25	26-30	over 30	not ans.
9th grade	2	8	5	1	0	0	2	0	0
10th grade	9	26	11	2	0	1	1	0	0
Total	11	34	16	3	0	1	3	0	0
Per cent	16.18	50.00	23.53	4.41	0	1.47	4.41	0	0
MORNING SESSION BOYS									
9th grade	4	17	11	1	2	1	0	0	0
10th grade	30	114	34	12	2	3	0	0	6
Total	34	121	45	13	4	4	0	0	6
Per cent	14.72	56.71	19.48	5.63	1.73	1.73	0	0	0

Of the afternoon session boys, 66.18 per cent spend no time or spend less than six hours running errands or helping with housework, compared with morning session boys, 71.43 per cent of whom spend no time at all or less than six hours. Of the afternoon session boys, 33.82 per cent spend from 6 to 30 hours, and of the morning session boys, 28.57 per cent spend a like number of hours. On the whole, there is little difference between morning session and afternoon session boys relative to this item.

TABLE 41. TIME SPENT RUNNING ERRANDS AND WITH HOUSEHOLD DUTIES

AFTERNOON SESSION GIRLS

Class	Hours none	1-5	6-10	11-15	16-20	21-25	26-30	over 30	not ans.
9th grade	2	5	15	13	2	4	1	0	0
10th grade	20	44	37	33	13	18	6	5	0
Total	22	49	52	46	15	22	7	5	0
Per cent	10.09	22.48	23.85	21.10	6.88	10.09	3.21	2.29	0
MORNING SESSION GIRLS									
9th grade	3	14	6	3	0	0	0	0	0
10th grade	10	57	28	11	7	5	1	1	2
Total	13	71	34	14	7	5	1	1	2
Per cent	8.90	48.63	23.29	9.59	4.79	2.42	.69	.69	0

32.57 per cent of the afternoon session girls spends no time or spends less than six hours running errands or helping with

housework. 57.53 per cent of the morning session girls spends no time or less than six hours. On the other hand, 67.42 per cent of the afternoon session girls spends from six to more than thirty hours, and 42.47 per cent of the morning session girls spends from six to thirty hours. While just a slightly higher percentage of afternoon session girls do not help at all as compared with the morning session girls, the others spend considerably more time with housework.

ABSENCE

The following tables indicate the absence of morning session and afternoon session pupils:

TABLE 42. DAYS ABSENT

AFTERNOON SESSION BOYS

Class	0	1	2	3	4	5	6	7	8	9	10	over 10
9th grade	10	2	3	1	0	2	0	0	0	0	0	0
10th grade	16	14	5	4	2	4	1	1	2	1	0	0
Total	26	16	8	5	2	6	1	1	2	1	0	0
Per cent	38.24	23.53	11.76	7.35	2.94	8.82	1.47	1.47	2.94	1.47	0	0

MORNING SESSION BOYS

9th grade	14	6	2	3	1	4	2	1	1	1	1	0
10th grade	94	28	32	17	9	6	1	2	4	2	0	6
Total	108	34	34	20	10	10	3	3	5	3	1	6
Per cent	45.57	14.35	14.35	8.44	4.22	4.22	1.27	1.27	2.11	1.27	.42	2.53

There are no wide variations between the two groups. Afternoon session 9th grade boys are absent on the average 1 1/6 days, and 10th grade boys, 2 days. Morning session 9th grade boys are absent on the average 2½ days and 10th grade boys, 1 3/4 days. Taken as a whole, there is practically no difference between the two groups.

The following tables indicate the absence of morning ses-

sion and afternoon session girls:

TABLE 43. DAYS ABSENT

AFTERNOON SESSION GIRLS

Class	Days 0	1	2	3	4	5	6	7	8	9	10	over 10
9th grade	27	9	2	1	2	1	0	0	0	0	0	0
10th grade	82	28	20	22	7	6	1	3	2	0	3	2
Total	109	37	22	23	9	7	1	3	2	0	3	2
Per cent	50.00	16.97	10.09	10.55	4.13	3.21	146	1.39	192	0	1.39	.92

MORNING SESSION GIRLS

9th grade	19	4	0	1	0	1	0	0	0	0	1	0
10th grade	59	30	6	11	3	5	7	1	0	0	0	0
Total	78	34	6	12	3	6	7	1	0	0	1	0
Per cent	52.70	22.97	4.05	8.11	2.03	4.05	4.73	.69	0	0	.68	0

Percentages for both groups indicate no wide variations. Afternoon session 9th grade girls are absent on the average .7 days and 10th grade girls, 1.7 days. Morning session 9th grade girls are absent .9 days and 10th grade girls, 1.32 days. Taken as a whole, there is practically no difference between the two groups.

A comparison of both groups of both sessions indicates that whether pupils attend school in the morning or in the afternoon, absence is affected very little.

DIVERSION BETWEEN LEAVING SCHOOL AND THE EVENING MEAL

Afternoon students were instructed to construe this question as applying to diversions in which they engaged during the hours of the day when they were not in school. A comparison of the afternoon session and morning session pupils is herewith given:

TABLE 44. COMPARISON OF AFTERNOON SESSION AND MORNING SESSION PUPILS IN REGARD TO DIVERSIONS BETWEEN LEAVING SCHOOL AND THE EVENING MEAL

	BOYS			
	AFTERNOON SESSION		MORNING SESSION	
	9th grade	10th grade	9th grade	10th grade
	Rank and per cent given			
Study	(1) 29.63	(1) 35.44	(1) 33.85	(1) 36.93
Be with friends or visit	.00	(6) 5.06	(4) 7.69	(5) 5.66
Work on a job	(4) 11.11	(4) 8.86	(7) 1.54	(3) 14.29
Help at home	(2) 37.04	(2) 22.78	(3) 16.92	(4) 9.43
Go downtown	.00	(5) 6.34	(5) 3.08	(6) 3.50
Rest or sleep	.00	.00	(5) 3.08	(8) .54
Go to shows	.00	.00	.00	(7) 1.62
Stay outside, walking,	(3) 22.22	(3) 20.25	(1) 33.85	(2) 28.03
Read papers	.00	(7) 1.27		

POINTS OF SIMILARITY AND POINTS OF DIFFERENCE. All groups place "study" first on the list. Morning session boys place "outdoor exercise" second on the list (9th grade boys place this item on equal terms with study, first) but afternoon session boys place it third. On the other hand, afternoon session boys place "helping at home" second, while morning boys assign it third and fourth places. Afternoon session boys place "working on a job" fourth but morning session boys place it seventh and third. Afternoon 9th grade boys mention no other items. Afternoon 10th grade boys mention 6.34 per cent for "going downtown"; 5.06 per cent for "being with friends or visiting"; and 1.27 per cent for "reading newspapers."

There is much similarity in the three major items: study, outdoor exercise, and helping at home, which comprise at least 75 per cent of the answers to the items. The afternoon session boys, however, are at a disadvantage so far as outdoor exercise and the more socializng values of being with friends or visiting, going to shows, and going downtown are concerned.

Following is a comparison of the afternoon session and the morning session girls:

TABLE 45. DIVERSIONS BETWEEN LEAVING SCHOOL AND THE EVENING MEAL

	GIRLS			
	AFTERNOON SESSION		MORNING SESSION	
	9th Grade	10th Grade	9th Grade	10th Grade
	Rank and per cent given			
Study	(1) 37.18	(2) 32.18	(1) 45.83	(1) 40.60
Be with friends or visit	(5) 3.85	(4) 5.88	(4) 8.33	(3) 11.54
Work on a job	(6) 2.56	(7) 2.08	.00	(7) 3.85
Help at home	(2) 35.90	(1) 40.14	(2) 20.83	(4) 11.11
Go downtown	(4) 7.69	(5) 5.19	(4) 8.33	(5) 8.55
Rest or sleep	.00	(8) 1.39	.00	(8) 1.71
Go to shows	.00	.00	.00	(6) 5.13
Outdoor exercise	(3) 12.83	(3) 10.38	(3) 16.67	(2) 17.09
Supper		(6) 2.77		.00
Clubs				.43

POINTS OF SIMILARITY AND POINTS OF DIFFERENCE. All groups with the exception of the afternoon session 10th grade girls place "study" first on the list. (These girls place it second with 32.18 per cent) 35.90 per cent of the afternoon 9th grade girls place "helping at home" second, and 40.14 per cent of the 10th grade girls place it first. Only 20.83 per cent of the morning session 9th grade girls "help at home". (2nd on the list) and only 11.11 per cent of the 10th grade girls help. (4th on the list) It is quite definitely shown that the afternoon girls are much more occupied with household duties than are the morning group. "Outdoor exercise" is third for all groups with the exception of the morning session 10th grade girls who place it second on the list. (Both classes of morning girls show a slightly higher percentage.) Afternoon session girls show a slightly higher percentage for "going downtown". The relative positions for this item for 9th grade and 10th grade girls correspond: 4th and 5th. Morning session girls show a more decided inclination for "being with friends or visiting": 9th grade girls, placing it fourth with 8.33 per cent and 10th grade girls, third with 11.54 per cent. Afternoon session 9th grade girls place it fifth with 3.85 per cent, and 10th grade

girls, fourth with 5.88 per cent. 5.13 per cent of morning session 10th grade girls place "going to shows" sixth on the list; other classes show no per cent whatever. Eight afternoon 10th grade girls mention the item, "supper". Evidently they assist in preparing the evening meal.

The same conclusion as is applicable to the boys holds for the girls; the three major items: study, helping at home, and outdoor exercise predominate. As is to be expected, the girls show a higher percentage for helping at home. Morning session girls enjoy the advantage of the more socializing values of going downtown and being with friends or visiting.

WHAT TIRES YOU MOST DURING THE SCHOOL DAY?

TABLE 46. COMPARISON OF AFTERNOON SESSION AND MORNING SESSION BOYS IN REGARD TO WHAT TIRES THEM MOST DURING THE SCHOOL DAY

	AFTERNOON SESSION		MORNING SESSION	
	9th Grade	10th Grade	9th Grade	10th Grade
	Rank and per cent given			
Preparation of lessons	(2) 17.86	(2) 22.35	(4) 9.52	(3) 17.66
Gym	(5) 7.14	(4) 9.41	(4) 9.52	(5) 6.55
Dressing (gym)	(4) 10.71	(7) 3.53	(6) 7.94	(7) 2.56
Rushing around	(1) 42.86	(1) 28.24	(1) 31.75	(2) 25.93
Tests	(5) 7.14	(4) 9.41	(3) 11.11	(4) 15.95
Oral recitations	.00	(6) 4.71	(8) 3.17	(6) 2.85
Difficult lessons	(3) 14.29	(3) 21.18	(2) 22.22	(1) 28.21
Lunch	.00	(8) 1.18	(7) 4.76	(8) .28

POINTS OF SIMILARITY AND POINTS OF DIFFERENCE. Afternoon session 9th grade boys, afternoon 10th grade boys, and morning session 9th grade boys place "rushing around" first on the list with respective percentages of 42.86; 28.24; and 31.75. Morning session 10th grade boys place it second with 25.93. A higher percentage of 9th grade boys becomes tired from rushing

around as compared with 10th grade boys, and afternoon session pupils show a slightly higher percentage than corresponding morning session pupils. Afternoon session 9th grade and afternoon session 10th grade boys place "preparation of lessons" second with 17.86 and 22.35 per cent respectively. Morning session 9th grade boys place this item fourth with 9.52 per cent, and 10th grade boys, third with 17.66 per cent. Morning session pupils show a higher percentage for "preparation of lessons" than do afternoon session pupils. Afternoon 9th grade boys place "difficult lessons" third on the list with 14.29 per cent, and afternoon session 10th grade, third with 21.28. Morning session 9th grade boys place this item second with 22.22 per cent and morning session 10th grade boys, first with 28.21 per cent. Morning session boys apparently have more trouble with "difficult lessons". Afternoon session 9th grade boys place "tests" fifth with 7.14 per cent and 10th grade boys, fourth with 9.41: morning session 9th grade boys place "tests" third with 11.11 per cent, and 10th grade boys, fourth with 15.95. Morning session pupils average a considerably higher percentage for this item than do afternoon session pupils. "Gym work" shows little fluctuation in percentages: afternoon session 9th grade boys, 7.14 per cent; afternoon session 10th grade boys, 9.41; morning session 9th grade boys, 9.52, and morning session 10th grade boys, 6.55. "Dressing before and after gym" occupies fourth place for afternoon session 9th grade boys, but all other classes place it seventh. "Oral recitations" do not appear to be fatiguing. Excepting the morning session 9th grade boys, "lunch" is a negli-

gible item.

It seems that the morning session is slightly less conducive to fatigue from rushing around than the afternoon session. When the items, "preparation of lessons" and "difficult lessons" are combined there is little difference for the same classes, 9th and 10th grade boys, in corresponding sessions. Why morning session pupils should become more tired from tests may or may not be due to the fact that they carry a different type of subjects. Excepting slight fluctuations there is little difference in the remaining items: gym, dressing before and after gym, oral recitations, and lunch.

TABLE 47. COMPARISON OF AFTERNOON SESSION AND MORNING SESSION GIRLS IN REGARD TO WHAT TIRES THEM MOST DURING THE DAY

	GIRLS			
	AFTERNOON SESSION		MORNING SESSION	
	9th grade	10th grade	9th grade	10th grade
	Rank and per cent given			
Preparation of lessons	(4) 8.22	(5) 11.54	(2) 21.28	(3) 18.43
Gym	(8) 1.37	(6) 5.45	(4) 17.02	(6) 5.53
Dressing (gym)	(3) 17.81	(2) 21.79	(6) 4.26	(5) 5.99
Rushing around	(1) 28.77	(4) 16.35	(3) 19.15	(1) 27.19
Tests	(6) 5.48	(3) 17.95	(5) 12.77	(4) 17.05
Oral recitations	(5) 6.85	(7) 3.53	(7) 2.13	(7) 2.30
Difficult lessons	(1) 28.77	(1) 22.44	(1) 23.40	(2) 23.50
Lunch	(7) 2.74	(8) .96	(8) .00	(8) .00

POINTS OF SIMILARITY AND POINTS OF DIFFERENCE. Afternoon session 9th grade girls and 10th grade girls place "difficult lessons" first on the list with 28.77 and 22.44 per cent, respectively. Morning session 9th grade girls place this item first on the list with 23.40 per cent, but morning session 10th grade girls place it second with 23.50 per cent. Percentages for all four classes are similar. Afternoon session 9th grade girls

place "rushing around" first on the list (tied with "difficult lessons") with 28.77 per cent; 10th grade girls place it 4th with 16.35. Morning session 9th grade girls place it 3rd with 19.15 per cent, but 10th grade girls place it first with 27.19. There is no uniformity, either in percentages or in rank. Afternoon session 9th grade girls place "preparation of lessons" 4th with 8.22 per cent, and 10th grade girls, 5th with 11.54. Morning session 9th grade girls, on the other hand, place this item second with 21.28 per cent, and 10th grade girls, 3rd with 18.43. Percentages of morning session girls are double those of the afternoon session girls, due to the fact that the latter pursue commercial subjects, some of which require little preparation compared with other subjects. Afternoon session girls find "dressing before and after gym" very fatiguing, 9th grade girls placing it 3rd with 17.81 per cent, and 10th grade girls, 2nd with 21.79. Morning session 9th grade girls place it 5th with 4.26 per cent, and 10th grade girls, 5th with 5.99. Afternoon session girls show four times the percentage of morning session girls. Investigation has revealed the fact that the afternoon session girls attend gym from 11.30 A.M. to 12.20 P.M., which hour precedes the formal opening of school for afternoon session pupils. The girls' physical director states that girls of the morning session do not mind dressing before and after gym so much because their classes follow the formal opening of school. On the other hand, girls of the afternoon session, on account of the limited time do not have sufficient opportunity to dress according to their tastes. That afternoon

session girls are not fatigued by the actual gym work, itself, is evidenced by the low percentages: 9th grade girls, 1.37; and 10th grade girls, 5.45. Afternoon session girls gym classes consist only of 9th and 10th grades. On the other hand, morning session figures show a large percentage of girls tiring of gym work, 17.02. These girls are enrolled in classes consisting of 9th, 10th, 11th, and 12th grade girls. 9th grade girls either outdo themselves or feel embarrassed in the presence of old classmen.

Afternoon session 9th grade girls are apparently little fatigued by "tests", placing them 6th with 5.48 per cent. However, the other classes evidently are fatigued: afternoon session 10th grade girls placimg them 3rd with 17.95 per cent; morning session 9th grade girls, 5th with 12.77; and morning session 10th grade girls, 4th with 17.05. On the other hand, 9th grade girls show more fatigue from "oral recitations", placing this item 5th with 6.85 per cent. Other classmen apparently are not much disturbed by them: afternoon session girls placing them 7th with 3.53 per cent; morning session 9th grade girls, 7th with 2.13; and morning session 10th grade girls, 7th with 2.30. "Lunch" is not a source of much fatigue: afternoon session 9th grade girls indicating 2.74 per cent; afternoon session 10th grade girls, .96; and the morning session girls reporting zero.

"Difficult lessons", "rushing around", and "preparation of lessons" occupy the first three places in the order named. "Tests" are quite bothersome, but, as has been stated earlier in

this study, they are a necessary part of the school routine. For afternoon session girls "dressing before and after gym" is a source of much fatigue, and for morning session girls, "gym", itself, is tiring. Fatigue resulting from these items will be materially reduced when the school is again on its normal running basis. Oral reciations and lunch contribute little fatigue.

REACTION UPON GOING TO BED

A comparison of morning session pupils with that of afternoon session pupils is herewith given:

TABLE 48. COMPARISON OF MORNING SESSION AND AFTERNOON SESSION PUPILS IN REGARD TO REACTION UPON GOING TO BED

	BOYS			
	AFTERNOON SESSION		MORNING SESSION	
	9th Grade	10th Grade	9th Grade	10th Grade
	Rank and per cent given			
Physically tired, sleepy.	(1) 44.44	(2) 42.55	(1) 64.71	(1) 57.95
Worn out	(3) 11.11	(3) 8.51	(3) 2.94	(4) 6.16
Stop work before finished	(4) .00	(4) 4.26	(4) .00	(3) 6.67
Feel like staying up longer	(1) 44.44	(1) 44.68	(2) 32.35	(2) 29.23

A smaller percentage of afternoon session boys is physically tired and sleepy as compared with morning session boys, and a much larger percentage feels like staying up longer. Despite the fact that afternoon session boys sleep an hour longer than morning session boys they show more disposition to be worn out. No boys of the 9th grades of either session stop work before it is finished, but 4.26 per cent of afternoon session 10th grade boys and 6.67 per cent of morning session 10th grade boys do. A comparative study of all factors points to the fact that the morning session boys present the more normal condition at the time of retiring.

TABLE 49. COMPARISON OF MORNING AND AFTERNOON SESSION PUPILS IN REGARD TO REACTION UPON GOING TO BED

	GIRLS			
	AFTERNOON SESSION		MORNING SESSION	
	9th Grade	10th Grade	9th Grade	10th Grade
	Rank and per cent given			
Physically tired, sleepy	(1) 59.52	(1) 41.18	(1) 79.17	(1) 68.97
Worn out	(3) 7.14	(4) 5.88	(2) 12.50	(3) 6.90
Stop work before finished	(4) .00	(3) 8.82	(4) .00	(4) 3.45
Feel like staying up longer	(2) 33.33	(2) 44.12	(3) 8.33	(2) 20.69

A much smaller percentage of afternoon session girls is "physically tired and sleepy" as compared with morning session girls, and a much larger percentage "feels like staying up longer". Morning session 9th grade girls show a large percentage for the item, "worn out", which is not doubt due to the fact that their average age is only 13 years and 6 months. None of the 9th grade girls of either session "stop work before it is finished", but 8.82 per cent of afternoon session 10th grade girls and 3.45 per cent of morning session girls do. On the whole, morning session girls, too, present the more normal condition at the time of retiring.

PART 111

CHANGES IN THE NORMAL ROUTINE RESULTING FROM PHYSICAL DEFECTS

This part of the study has to do with those high school pupils who, on account of specific recommendations of the school physicians, are advised to have special treatment during the gymnasium period, or who are to alter their health habits outside of school in order to correct certain physical defects.

In the Holyoke Public School System all pupils of grade one, three, five, seven, and nine are given an annual examination by school physicians. Notices of defects are sent home to parents who are advised to cooperate in having them corrected. Pupils in grades two, four, six, and eight are not given an annual examination, due to the fact that the school physicians lack adequate time, but all pupils in these grades who have more than minor defects are closely kept under observation by the medical staff. Thus, the number of pupils with serious defects entering high school is reasonably small.

The number of defects found in high school boys by examination of the school physician during the months of September and October, 1931, were:

TABLE 50. DEFECTS AMONG HIGH SCHOOL BOYS

Teeth	118
Posture	32
Hernia	4
Heart	6
Lung	1
Spinal curvature	2
Orthopedic	4
Glands	4
Tonsils and adenoids	28
Underweight	22
Eyes...(Diseases)	1
Nervous system	1
Total	223

Excluding the item, teeth, 118 defects, there were 105 defects distributed among 93 boys. The average enrollment of boys

during the months of September and October was 808. The percentage of boys having one or more defects was 11.51, or one of every nine boys was handicapped to the extent that some change in his routine was necessary.

The number of defects found in high school girls by examination of the school physician during the months of September and October, 1931, were:

TABLE 51. DEFECTS AMONG HIGH SCHOOL GIRLS

Teeth	138
Posture	44
Ear.(diseases)	1
Eyes.(diseases)	1
Skin	23
Glands	6
Scalp	1
Heart	11
Feet and spine	3
Tonsils and adenoids	35
Underweight	35
Lungs	2
Nervous system	3
Total	303

Excluding the item, teeth, 138 defects, there were 165 defects distributed among 150 girls. The average enrollment of girls during these two months was 854. The percentage of girls having one or more defects was 17.56, or one of every six girls was handicapped to the extent that some change in her routine from the normal was necessary.

In the high school all pupils are given an annual examination which includes all the items stated on the "Physical Record" card, a copy of which appears on the following page. At the examination, the physical directors, and in the case of the high school girls, the nurse assigned to the high school, are present. The examinations are very thorough. Parents are no-

The Commonwealth of Massachusetts

DEPARTMENT OF EDUCATION

PHYSICAL RECORD

Name ____________________ Parent ____________________ Town (City) ____________________

Address ____________________ Occupation ____________________

Date of Birth* __________ Sex ______ Birthplace, Father (Country) ____________________

Place of Birth ____________________ Birthplace, Mother (Country) ____________________

Date																Ears (Diseases)															
School																Throat, Tonsils and Other															
Grade																Nose, Adenoids and Other															
Mucous Membrane, Color																Glands															
Nutrition																Heart															
Posture																Lungs															
Scalp																Feet and Spine															
Skin																Nervous System															
Teeth																															
Eyes (Diseases)																Examiner (Initials)															

CODE:
- 0 - Normal
- 1 - Slight Defect
- 2 - Moderate
- 3 - Immediate Attention
- X - Indicates Notice
- Y - Irremediable Defect
- oo - Adequate Correction
- oo/2X - Inadequate Correction
- T - Under Treatment
- PP - Parent Present

Grade															
Date															
Height															
Weight															
Standard Weight															
Date															
Height															
Weight															
Standard Weight															
Date															
Height															
Weight															
Standard Weight															
Date															
Height															
Weight															
Standard Weight															
Date															
	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.	R. L.
Sight															
Hearing															
Speech Defects															

*Write dates as follows: 28/5/2.

tified of the defects and are requested to cooperate in having them attended to. During the school year, the physical directors and nurse "follow up" the examinations, and with the assistance of the doctors achieve most satisfactory results. Advantage is taken of the orthopedic clinic which offers treatment, gratis. In many cases where pupils are unable to meet the cost of competent medical treatment, the school nurse assigned to high school work has been able to secure such treatment from private physicians. Holyoke enjoys the favorable situation of having the physicians and nurses under the jurisdiction of the school department. This makes for an ideal arrangement of all forces engaged in the welfare of the school child inasmuch as they present a united front toward removing defects which impair the pupils' health. The remarks on the back of the physical record card attest to this fact. Following are examples of typical notations which appear:

F.L.	Sept. '31	Chorea.
	Oct. '31	Excused from swimming. Advised to take rest periods.
E.M.	Sept. '30	Empyema (1917). Frequent X-Ray shows normal condition of lungs
	April '31	May try swimming in about two weeks and report every three weeks.
	Sept. '31	O.K.
A.S.	12-5-29.	Color, poor. Advised as to diet. To see family physician.
	12-11-29	No improvement.
	12-19-29	No improvement. See after Xmas.
	1-23-30	Improvement: gained three lbs.
	2- 2-30	Improvement: gained two lbs. See in April.
	4- 2-30	Improvement.
	9- '30	O.K.
	10- '31	O.K.
S.S.	10- '31	Complained of pain in inguinal region.
	11-19-31	Pain in right side continues. Advised to see

		family physician. See next week. Excused from gym until after Xmas.
	12- 31	Has seen family doctor. Improved. Report for gym.
R.S.	1-15-30	Complaint: pain in the heart region. Absent frequently. Bone protuding in rib region.
	1-16-30	Heart normal. Development of ribs normal. Neurasthenic.
	4-17-30	Absent. Ill over three months. Returned in April but unable to do gym work. Excused.
	12- 30	To report for gym.
	10- 31	O.K.
A.K.	9- 30	Curvature, left lumbar. Advised to go to Day Nursery Clinic.
	10-6- 30	R-Rayed at hospital. Epiphysitis: left lumbar, right dorsal.
	12-4- 30	Von Pirquet test asked for. Has consented to go to Westfield sanatorium for the test.
	12-11-30	Test, positive. Report at Day Nursery clinic.
	5- 31	General condition improved enough to postpone or eliminate necessity of operation.
	11-4- 31	Cast applied, Oct. 16th, for correction of curvature. Excused from all gym work.

Excluding "teeth" which have no relation to gym work or swimming (correction of defects of teeth is a matter of having caries attended to and deficiencies corrected), the other items have some immediate bearing either on gymnasium work or on swimming. Physical defects, such as underweight, enlarged glands, heart anomolies, and nervous disorders affect the type of work in the gymnasium or on the playfield; diseases of the scalp, skin, eyes (not errors of refraction), ears, throat, nose, enlarged glands, heart irregularities, and nervous disorders indicate exclusion from swimming.

UNDERWEIGHT

Underweight may indicate malnutrition or lack of proper growth and development. What the school can do in combating this is admirably summed up in the following paragraph by Terman: "The problem of malnutrition is one which presents numerous

aspects and varied relations, raising as it does fundamental question in sociology, economics, physiology, and hygiene. The problem is not solved by an occasional dole of food in or out of the school. What is demanded is a constantly adequate diet, better housing and clothes, opportunity for play, rest, and sleep, and vigilant medical supervision of the entire life. With the possible exception of housing, the school can make immense contribution along all these lines, and by appropriate education in household science, hygiene, and related matters can give us a new type of parent for future generations of children." (1)

The following items appear on the cards for underweights:

Parents notified
To be weighed every two weeks
Taking milk in school
Rest instead of gymnasium work
Restricted exercise
Advice given in diet.

The usual procedure with underweights is to have the physical director weigh them every two weeks, and in the case of students considerably below weight, to weigh them weekly. Both students and parents are advised as to diet suitable for gaining weight and physical vigor. Many of the pupils take milk during the school day. The school physicians advise the physical directors concerning the type and quantity of exercise, and in individual cases prescribe rest instead of active exercise. As has been enumerated earlier in this study, adolescence is a period of unusual growth. Rest rather than exercise is the remedy needed. Since the physical directors are present at the

(1) Terman, The Hygiene of the School Child, pp. 121-122

annual physical examinations, they have an opportunity to know their students intimately sofar as their physical shortcomings are concerned. They are able to give valuable suggestions in regard to play, rest, and sleep.

It is apparent that the individual attention paid to underweight students materially affects their mode of living, and in this way enters into their division of the school day. Most assuredly it places an emphasis on health. The average student responds favorably. However, there are some students who need constant "checking up". With the school physicians, nurses, and physical directors presenting a united front toward the formation of desirable health habits, even these disinterested students eventually show improvement.

DEFECTS OF GLANDS, HEART, AND NERVOUS SYSTEM

Enlarged glands, organic and functional heart disease, and affectations of the nervous system and lungs decree limited gymnasium work or even abstinence from it entirely. The school physicians are the sole judge of what type of activities these debilitated students can pursue to advantage in the gymnasium and how many studies they can pursue with safety.

Thirty-four students are incapacitated to the extent that they cannot carry on the normal program in school. Their program outside of school must likewise be modified. Enlarged cervical glands, indicative of the body's effort to combat infect. demand that resistance be built up by a hygienic mode of living. Heart diseases, both organic and functional, often require the students to adopt a more physically passive type of

routine. Affectations of the lungs and the nervous system make imperative that more time be spent outdoors.

CONDITIONS DEMANDING EXCLUSION FROM THE SWIMMING POOL

Diseases of the scalp and skin, sensitiveness of the membranes of the eyes, nose, throat and nose, and running ear, (both acute and chronic) require the exemption from swimming. Many of the pupils are excused until the condition, if temporary, is cleared up. Others are excused permanently. (Most of the cases of enlarged glands, heart trouble, and nervous ailments are excluded from the pool.)

Although these pupils are excused from swimming, they need not necessarily be excused from gymnasium work. Often they are assigned to an extra period of gymnasium work.

All the above pupils are examined from time to time to note improvements or the reverse. If they follow the advice of the school or private physicians and readjust their after-school routine and personal habits, they often succeed, during this period of adolescence, to eradicate those conditions which might become chronic if allowed to persist.

DISEASED TONSILS AND ADENOIDS

Sixty-three pupils present cases of tonsils and adenoids where the general health might be materially improved by means of tonsillectomy and adenoidectomy. We might go one step farther than Terman and say that health, in a general sense, raises fundamental questions in sociology, economics, physiology, and hygiene. In Holyoke we have many families who cannot afford the expense of tonsillectomies and adenoidectomies. Although we do

have a clinic for these two operations, it is taxed to the utmost, and only the most urgent cases can be taken care of.

It is safe to state that the amount of absence could be substantially reduced if all pupils presenting abnormal conditions of tonsils and adenoids could be taken care of.

POSTURE

Sixty-six pupils have more than slight defects in posture. However, much is being accomplished to reduce this number to a minimum. I wish to quote from the report of the Girl's Physical Director: "Due to the fact that so many girls had postural defects, I formed a posture clinic. The girls in this clinic, who came to me once a week, were given either passive treatment, or were prescribed exercises to practise ten to fifteen minutes daily at home. Closely associated with the posture clinic was the Rest period. Several girls who were recommended by Dr. Shine to use the regular gymnasium period as a rest period spent the hour in relaxation instead of exercise. The results of the posture clinic and of the rest periods were most satisfactory." (1)

The more severe cases of postural defects are referred to the Day Nursery clinic, where competent physicians prescribe exercises, apply casts, and strive to build up in the pupils a more desirable muscle tone. Both the girls' and the boys' physical directors are unusually well qualified to do corrective work. Recommendations of this clinic are forwarded to the physical directors, who cooperate in every respect.

As has been enumerated above, pupils with postural defects are given special attention in specialized classes of gymnasium

---

(1) Annual Report of the Holyoke Public Schools, p.
(In process of being printed)

work. As a rule, these pupils make an effort, through modifying their outside school routine, to remove these defects. However, outside of the additional amount of time to be spent outdoors, their routine is not affected otherwise to any great degree.

S U M M A R Y

SUMMARY

1. The central location of Holyoke High School, within walking distance of over 96 per cent of the student body, provides opportunity for walking, one of the best of exercises.

2. A "check up" of known answers of the questionnaire lends authenticity in support of the entire questionnaire.

MORNING SESSION PUPILS, OR THE STUDENT BODY PROPER

3. Pupils arise early enough to permit of sufficient time for dressing, eating breakfast, and walking to school.

4. Ninty-eight per cent of the pupils retires at 11.00 p.m. or earlier. Only two per cent, of whom over half are post graduates, retires after 11.00 p.m.

5. The composite high school boy, although 9.7 months older than the composite high school girl, sleeps three minutes longer. This is due to the fact that a larger percentage of boys exercisesoutdoors and that they mature from two to three years later.

6. Both boys and girls slightly exceed the amount of sleep estimated by striking an average between authorities of divergent opinions.

7. The composite high school boy goes to bed twenty minutes later on Sunday night than on school nights; the composite high school girl, twenty-two minutes later. The tendency to stay up longer on Sunday nights is more noticeable in 11th grade and 12th grade boys, and in 12th grade and post graduate girls.

8. It is advisable for students to arrange their "nights out" to come on Friday or Saturday night, when sleep can be made up

on the following morning.

9. 96.85 per cent of the boys and 91.12 per cent of the girls come to school fortified with a breakfast. 3.14 per cent of the boys and 8.86 per cent of the girls seldom or never eat breakfast. These pupils, sixty-nine in number, might do well to arrange their eating habits, inasmuch as the adolescent period requires partaking of a larger amount of nourishment than any other period of life.

10. With the exception of the 12th grade girls, of whom 64 per cent carry an additional subject, there is a tendency to stay home fewer evenings from the 9th and 10th grade to post graduate students. Boys average 3 1/3 evenings and girls four evenings at home during the week.

11. Over one-half of all boys are gainfully employed; over one-fourth work from 11 to 30 hours; and one of every seven boys works more than 20 hours per week. Over one-fourth of all girls are gainfully employed; over one-tenth work from 11-30 hours; and one of every twenty-three girls works more than 20 hours per week. Of the entire student body, one of every five pupils works more than two hours daily. These figures are significant insofar as they show the commendable efforts of such a large percentage of students who are financing their education in whole or in part.

12. One of every six boys does not run errands or help with housework in comparison with one of every twelve girls who does not help. Three times as many girls as boys help more ten hours per week, or more. With the exception of the 12th

grade girls, 64 per cent of whom carry an additional subject, there is a constant progression in the number of hours for housework from the 9th grade to the post graduate class. With boys there is no progression.

13. There is not much difference in the absences of girls and boys.

14. Excepting the post graduate girls, all other classes place "study" first on the list of diversions between leaving school and the evening meal, which indicates that in the main, pupils take their school work seriously.

15. Pupils display a healthy interest in outdoor exercise, walking,and sports, indicating that there is considerable carry-over from the general physical education program. Boys place "outdoor exercise" second on the list, and girls, third.

16. Tabulations of the items, "Work on an outside pay job" and "Help at home or run errands" corroborate the previous findings in regard to the amount of time spent working or helping at home.

17. Post graduate girls place "be with friends or visit" first on the list, but other classes place it fifth, with relatively low percentages. Double the number of girls prefer this diversion to boys.

18. Girls prefer to spend more time downtown than boys, but in both cases the relative percentages are low.

19. One of every fifty boys and one of every twenty-seven girls attend movies in the afternoon. This is a very low percentage when the fact is taken into consideration that there are four movies within a fifteen minute walk from the high school. For after-school diversions students prefer outdoor

play, working or helping at home, and study.

20. Only a small number of students rest or sleep in the afternoon. This group is made up mostly of students who get up before 6.00 A.M. and who work before going to school.

21. One-fourth of the entire student body declares that "difficult lessons" are fatiguing. This suggests that the matter of pupil adjustment should be given more consideration by those in charge of administration, teaching, and preparation of courses of study.

22. "Rushing around" as an accompaniment of the school routine is a source of much fatigue to student: girls place it first on the list and boys, second. Post graduate students experience more fatigue from "rushing around" than do the other classmen, but it is caused by outside activities rather than by the school routine.

23. Both boys and girls place "preparation of lessons" third on the list. Inasmuch as this item cannot be divorced from educational methods, it is a logical source of fatigue.

24. Test, both achievement and diagnostic, are not conducive to much fatigue on the part of the students, for only one-seventh of the pupils state that they are tiring.

25. Upper classmen do not find gymnasium work fatiguing. Both 9th grade boys and 9th grade girls express rather high percentages: 9.52 for the former and 17.02 for the latter. This can be explained, however, by the fact that the present (temporary) scheme of grouping classes forces 9th grade pupils to be members of classes enrolling upper classmen, an arrangement which induces these pupils to become physically tired through their de-

sire to emulate their more mature classmates.

26. Only 4.00 per cent of the students are fatigued by oral recitations. This low percentage is undoubtedly the result of the policy of extending oral recitations into the junior high school classes and upper grades of the elementary schools.

27. As is natural more girls dislike dressing before and after gym. Being a necessary part of gymnasium work it cannot be eliminated.

28. The source of fatigue resulting from lunch is practically negligible, since only ten boys and six girls of 1211 pupils make mention of this item.

29. 60 per cent of the boys and 70 per cent of the girls indicate that they are physically tired upon going to bed, the condition resulting from the combined activities of the day rather than from any one particular item.

30. Three of every ten boys and one of every four girls feel like staying up longer. There is a progressive increase in the percentages of girls from the 9th grade to the post graduate, but there is no progression among the boys.

31. One of every sixteen boys and one of every twenty girls are worn out at the end of the day. The causes, rapid physical growth and the tendency to overdo, corroborate Tyler's studies in adolescence.

A COMPARISON OF MORNING SESSION AND AFTERNOON SESSION PUPILS

1. Afternoon session pupils get up one hour and eight minutes later than morning session pupils. Morning session boys retire a few minutes later than afternoon session boys; but morning ses-

sion girls retire nineteen minutes earlier than afternoon session girls. In the aggregate, afternoon session pupils sleep fully one hour more than morning session pupils.

2. Based upon conclusion reached by authorities on sleep, afternoon session pupils sleep too much. In comparison with morning session pupils they are not more rested and lose one hour of every twenty-four which might be advantageously spent in other diversions more profitable.

3. Afternoon session boys go to bed earlier than morning session boys, but the reverse is true of the girls.

4. Whether pupils attend either the morning or afternoon session has little bearing on whether they eat or do not eat a breakfast.

5. The same is true concerning the number of nights stayed home.

6. All other factors being equal, morning session pupils find gainful occupations more readily than do afternoon session pupils.

7. On the whole there is little difference between morning and afternoon session boys relative to helping at home. While a slightly higher percentage of afternoon session girls does not help at all, the others spend considerably more time with housework.

8. Afternoon session pupils and morning session pupils show no marked difference in regard to absence.

9. There is little difference between morning and afternoon session pupils in regard to study, helping at home, and outdoor exercise. Morning session pupils have a distinct advantage over

the afternoon session pupils sofar as socializing values (visiting, going downtown, or engaging in outdoor sports) are concerned.

10. Morning session boys are slightly less tired from "rushing around" than afternoon session boys, but they show a greater aversion to tests. Other items, studies, gym, dressing before and after gym, lunch, and oral recitations show little differences. Dressing before and after gym is a source of much fatigue to afternoon session girls, whereas, gym, itself, is fatiguing ot morning session girls. Both of these items are the result of the two-session plan. Other items, listed above for the boys, show little difference.

CHANGES IN THE NORMAL ROUTINE RESULTING FROM PHYSICAL DEFECTS

1. One of every nine boys and one of every six girls are handicapped to the extent that some change in the normal routine is imperative.

2. The fact that the nurses and doctors are under the jurisdiction of the school department makes for a united front in dealing with cases of remediable defects.

3. Notations on physical record cards show that pupils are reaping the benefits of this united front toward removing defects.

4. A close "check up" is maintained on underweight pupils. Restricted gymnasium work, rest periods in school, taking milk during the school day, and a hygienic routine outside of school are the measures pursued in the attempt to gain weight and build up physical vigor.

5. Defects of the heart, nervous system, and glands demand

special measures both in the gymnasium and outside of school.

6. Certain pupils, who for reasons must be excluded from the swimming pool, can derive benefit from an additional period of gymnasium work.

7. On account of economic conditions and the fact that our clinics are taxed to the limit, many cases of diseased tonsils and adenoids cannot be taken care of as they should.

8. Much is being done in the gymnasium and in the clinics toward correcting postural defects. Not only do pupils display an active interest in the gymnasium toward correcting their postural defects, but they are doing their part outside of school toward building up general muscle tone.

RECOMMENDATIONS

RECOMMENDATIONS

The findings of this study indicate that there are health problems in the Holyoke High School which require urgent and immediate attention. They can best be solved by two means: the creation of a Health Council, and a unit in health.

THE HEALTH COUNCIL

1. FUNCTIONS OF THE HEALTH COUNCIL

   A. To create an active interest in school health work by a whole-hearted cooperation of the members of the faculty and the entire student body.

   B. To consider active measures in dealing with specific health problems. (I shall enumerate at length the various items which this study shows to be imperative at this time.)

   C. To centralize the organization and administration of the school health program.

   D. To act as a clearing house for all school and community health projects.

   E. To secure a more efficient cooperation of the home and the school in health matters.

11. DISCUSSION OF FUNCTIONS OF THE HEALTH COUNCIL

A. TO CREATE AN ACTIVE INTEREST IN SCHOOL HEALTH WORK BY A WHOLE-HEARTED COOPERATION OF MEMBERS OF THE FACULTY AND THE ENTIRE STUDENT BODY. Nothing is more conducive to achieving desirable results in any particular phase of school work than a whole-hearted cooperation of teachers and students. To begin with, every teacher must have an interest in health. Health is not an end in itself, but it is unquestionably an important means of attain-

ing our desired accomplishments. That some teachers do not recognize the importance of health as a means of securing better scholastic achievements on the part of their pupils is no doubt due to the fact that the question has never been presented to them with forcible and convincing arguments. Again, pupils in the adolescent age feel that their supply of energy is boundless and as a result they are apt to be quite reckless in the dissipation of physical strength which, on the contrary, they should foster and conserve. Therefore, a harmonizing point of view on the part of both teachers and pupils will do much to place the proper emphasis on health.

B. TO CONSIDER ACTIVE MEASURES IN DEALING WITH SPECIFIC HEALTH PROBLEMS

Among the various matters which demand immediate attention by the council are:

1. Sleep. Of the morning students, twenty-four, or 1.93 per cent get less than eight hours of sleep. 311 students, or 25.68 per cent get less than nine hours of sleep. The period of adolescence is indeed critical. There are two means of building up resistance: one, proper diet; and the other, adequate rest. In order that we shall do the right thing by our pupils it is well to stress the maximum requirements in the table suggested by Dr. Williams. (1) We should try to secure nine hours of sleep as the minimum. One-fourth of our students need to arrange their sleep habits. How can this be done? We can have these students keep sleep charts. On the whole, students are frank and honest, and if the need of securing the proper amount of sleep is brought home to them with sufficient force, they will do their share in

(1) See Table 13, p. 59

mending their habits. The one element that is to be stressed is the regularity of sleep habits, and that if any deviation from the normal routine takes place, sleep is to be made up.

Afternoon students, on the main, sleep more than is necessary. They might profitably arrange their sleep schedule so that they would conform to the same pattern as the morning students. Being in school afternoons they do not get their proper share of exercise, play, and recreation unless they put themselves on a different schedule and strive to re-arrange their program. As has been pointed out, they are not only cultivating lazy habits, but they are losing one hour each day which might be spent in a wholesome manner, for during the mornings, all of our playground facilities are at their disposal. There is no question but that, their sleep requirements having been filled, this extra hour of outdoor play and exercise would be far more beneficial to them than the extra hour of dozing.

2. Retiring at a reasonable hour on Sunday night. One hundred one students, or 8.3 per cent, go to bed at 11.30 p.m. or later on Sunday night. It is evident that these students do not get sufficient sleep to be rested on Monday morning. In addition to the fact that these students lose their sleep, they violate the principle of starting the day and the week "right", the psychology of which cannot be questioned.

3. Pupils who are worn out at the end of the day. This is a matter which requires pressing attention, for, at the critical age of adolescence, health must be conserved as much as possible. Eighty-six pupils of the entire enrollment declare that they are worn out at bed time. The normal reaction is to be physically

tired and sleepy, but not to be worn out. These eighty-six pupils are expending more energy than they can reasonably afford if they are going to develop into physically and mentally efficient adults. Either they will do irreparable harm to their physical constitutions, or they will invite disorders of their nervous systems. These pupils may be easily recognized by the vigilant teacher who must see evidences of extreme fatigue during the school day. It is possible to eliminate these cases of pupils who are "worn out" either by a drastic change in prevalent health habits or by a change of program and habits of study. Of all the items listed in this study, this one admits of complete eradication.

4. Breakfast and Underweight. Sixty-nine pupils of the morning session do not come to school fortified for their day's work with sufficient nourishment. This study has proved that the lack of a breakfast is closely correlated with fatigue resulting from rushing around. Furthermore, these pupils show a higher percentage for difficulty with their lessons than the other students, and are at a distinct disadvantage. The procedure to attack the question of getting these sixty-nine pupils to eat a breakfast suggests two alternatives: some will have to get up earlier in order to have sufficient time to eat; others will have to cultivate the habit of eating in the morning although they may have an aversion to doing so.

Twenty-two boys and thirty-five girls are more than ten per cent underweight. Considerable attention is given the girls in order to bring them close to the normal weight of their age and build. Very little is done for the boys, however, on account of

the lack of teaching personnel. Two factors are usually responsibel for underweight: the hereditary build of the individual and malnutrition. These fifty-seven pupils deserve individual attention. The health council can do much to interest these pupils in attaining the proper weight, one of our chief indices of physical condition.

Many people wait until they have a physical breakdown before they revise their health habits. The more sane procedure is to alter health procedures so as to avoid any such calamities.The cure for hilum tuberculosis, which develops during the adolescent age and which manifests itself even still more in the immediate following years, is entirely a matter of nutrition and of a hygienic regime of living. (1) As educators entrusted with the welfare of our students, physically, mentally, and morally, we should feel impelled to give more attention to such matters, prosaic as they may seem, as whether our pupils are eating the right kinds of foods, in sufficient amounts, and at the right time. Just now the School Department has enlisted the aid of the Chadwick clinic for the eradication of hilum tuberculosis from our school population. No clinic, however well intentioned, can hope for desirable results unless a concerted effort is made by the pupils themselves, their parents, and all of their teachers.

5. Health as a requisite for work. One of the startling findings of this study has been the unusually large number of students who are gainfully employed. It is the intent of the state laws in regard to employment to safeguard the health of the school child. Boys and girls from fourteen to sixteen years

---

(1) J.F.Williams, Personal Hygiene Applied (W.B.Saunders Co.), N.Y. 1925, pp.237-238
Paul Wakefield, M.D., Address to Holyoke High School Students, May 11th, 1932

are limited to eight hours of work daily, none to be after 6.00 p.m.. and are required to pass a physical examination; boys and girls from sixteen to twenty-one years are also limited to eight hours of work daily, but may work after 6.00 p.m., and are likewise required to pass a physical examination. The purpose of the physical examination is to ascertain whether the type of work which boys and girls propose to do is compatible with their physical condition.

Practically the entire student body will be confronted, sooner or later, with the situation of obtaining employment of some kind. The question now arises,- Have we given the physical side of education its proper attention so that we have built up the health of our youth in order that they can withstand the rigors of the arduous duties of life? The fact that there are 105 defects, excluding teeth, distributed among 150 girls, answers the question. Unless these defects are corrected, these pupils will go out into the world, starting with a distinct handicap. Here is a matter which is more than a question of simply individual pupil concern! Indeed, it is a question of such vital importance, to which our community contributes its share, that it assumes national significance. President Herbert Hoover saw fit to call into being the White House Conference, the most important conference of its kind held in this country. It is not enough that we are cognizant of physical defects. Just as our shortcomings in educational procedures become our objectives, so must these physical deficiences become the object of our attempts toward the physical betterment of our pupils. And here we have at the outset problems of gigantic proportions.

6. Absences. In a period of sixty school days, one of every eighteen boys and one of every fourteen girls have been absent from five to ten days. Investigation of the causes of absence of more than one day discloses that the primary cause was illness. Immediately there arises the question: How much of this illness was preventable and how much of it was due to the fact that pupils took the necessary precautions not to come to school until they felt that their illness would not spread contagion to their schoolmates? A low percentage of absence does not necessarily indicate a high degree of health, for often pupils with colds are in session when it would be much more advisable for them to remain at home. The investigation of the causes of illness could well be taken up by the Health Council, and it could be made a very interesting project for students enrolled in the Elective Health Unit, which I shall discuss later.

7. Study habits. Here is a matter which is important not only from the standpoint of health but also from the point of view of attaining desirable results in other subjects. One-fourth of the entire student body declares that difficult lessons are the chief source of fatigue during the school day. This indicates one of several things: perhaps the pupil is insufficiently grounded in fundamentals so that he cannot pursue certain subjects with profit; perhaps he is taking a subject for which he has no aptitude; or perhaps he does not possess the necessary techniques which that subject requires. With preparation of lessons being a source of fatigue to one-third of the entire student body, the question arises whether or not

the students have mastered the "art" of study, so that it is attended with practically no fatigue. Poor scholarship reflects many factors in the pupils' make-up which demand attention; and one of these, which has been neglected, only too often, is the health aspect. Possibly, the student who is not keeping pace with his work is carrying too heavy a program and does not possess the physical energy necessary to do justice to his studies; and possibly, he may be one of the pupils, who through necessity is obliged to do much outside work in order that he may attend high school.

If there is one way in which teachers may become interested in the health aspect of education, it is through the avenue of pupil achievement in the regular school work. Of all the matters which the health council might take up, the relation of study, and habits, both inside and outside of school, might be the most pertinent in securing interest. (Teachers, on account of the pressure of results to be achieved, demands upon the pupils which seem to them to be reasonable.) On the other hand, we have the reaction of the pupils, expressed in no uncertain answer, that those demands often exceed normal expenditure of effort on their part. Indeed, the matter of study is so intricate in its scope and so delicate in its solution, that the health council could well afford to appoint a special committee of both teachers and students to arrive at a conclusion that would achieve an improvement in study habits, a better distribution of difficult assignments, and less student strain.

In this connection I cannot refrain from making the recom-

mendation that the need of a counselor or counselors is imperative. We do not have any duly designated person to whom a student might go for advice except the principal, and as is but natural, few pupils will, in the presence of their schoolmates, seek an interview with him. A pupil who is down in his studies can easily develop an inferiority complex. In that case he would be disinclined to seek any advice whatever. It would, therefore, devolve upon the counselor to take the initiative. When we consider the total expense of such a large establishment as the Holyoke High School, the cost of employing a counselor for the boys and a counselor for the girls would be small indeed. As to the results, they would probably far exceed our expectations, for the old adage, "A Pound of Prevention is Worth a Pound of Cure", would reap dividends even in the educational field.

There are thirty boys and eleven girls who at bed time stop work before it is finished. On the one hand this represents only a small percentage of the entire student body, but, on the other hand, it comprises more than the enrollment of one section room. These pupils might well be taught how to budget their time more efficiently. Again, improvement of study habits might be of considerable value.

8. Tests. Approximately one-seventh of the entire student body experiences fatigue as a result of tests. Tests are a part of our teaching procedure that cannot be entirely dispensed with. In view of the fact that achievement and diagnostic tests are a rather recent innovation in education,

many pupils have not adjusted themselves to them. Achievement tests are not given frequently so it must be the diagnostic tests and daily or weekly tests that are tiring. To correct the impression of students that tests are so important, teachers should emphasize the fact that after all, it is the daily work which is paramount. Report cards are issued every five week and grades are entered on office records every ten weeks. It has been suggested by some pupils that the fatigue in connection with tests is due, not so much to the tests, themselves, as it is to the preparation of getting ready for them. This, again, suggests the necessity of improving study habits, and impressing upon students the fact that knowledge is best acquired and retained by a process of diligent daily application rather than by an intensive cramming before an examination. In the health council where teachers could learn at first hand the pupils' slant on tests, much could be accomplished in reducing the needless worry and exhaustion attendant with tests. Despite the prevalent notion that the giving of tests is supposed to be an easy procedure, there is much concerning the content and types of tests that must be learned. After all, "...examination is an Art, and a difficult one, which has to be learned like all other arts". (1)

9. Rushing around. Our students reflect the spirit of the age which requires individuals to move at a rapid pace. Undoubtedly much of the fatigue due to rushing around is the

---

(1) T.H.Huxley, Science and Education, Doubleday & Co., N.Y. 1894, pp. 230-231

result of outside school activities, as is evidenced by the high percentages of both the post graduate boys and the post graduate girls. Some of the fatigue is due to the fact that too little time, three minutes, is allowed for passing from one class to another. Pupils frequently have to go from the first to the third floor and to the opposite side of the building. This gives them no opportunity for toilet facilities, for getting a drink, or for enjoying a few minutes of relaxation between strenuous periods of study. It would be advisable to increase the period for passing from three to five minutes, even though it might be necessary to lengthen the school day ten minutes. Again, both pupils and teachers might profit by learning the lesson of frequent relaxation to counteract the effects of the rapid pace of life.

10. Gymnasium work. Since health is the first cardinal objective of secondary education, then the set-up of the entire school program should be made around the physical education program. In no other subject would a condition be tolerated where 9th, 10th, 11th, and 12th grade pupils constitute a group. Such arrangement makes it exceedingly difficult for a teacher to plan a satisfactory program which meets the needs of the different ages and conditions. A comparison of afternoon session girls, where the groups are homogeneous, and of morning session girls, where groups are heterogeneous, proves that the fatigue of gymnasium work is traceable to the heterogeneous groupings. Homogeneous groups would permit of a physical education program adapted to each group, which would be a decided improve-

ment of the activity program now in force that tries to adapt itself to the greatest good for the greatest number. One of the most satisfactory general tests for grouping pupils is the physical fitness test of Dr. Frederick Rand Rogers. This test makes it possible to determine the pupils' physical fitness indices and to classify groups into divisions of the physically superior, the average, and the physically inferior.

Fatigue resulting from dressing before and after gymnasium work suggests the need of instructing girls in the habits of orderliness. Investigation of many of the lockers indicates that there are numerous examples of slovenliness in the arrangement of garments. Definite instructionsin the procedure of dressing so as to effect an economy of time are necessary even among high school students.

11. Teeth. Two hundred fifty-six students, or 17.10 per cent, are in need of dental attention. The health council may profitably make a study of the causes of so many dental defects and then proceed to eradicate them. One of the most urgent needs at this time is the employment of a dentist and a dental hygienist. If the health council would reinforce the recommendation of the Director of Health and Physical Education in regard to the absolute necessity of adding these two additional members to the department, there would be more chance of favorable action to employ them on the part of the school board. Another aspect of the dental problem is lectures and projects on the subject of proper nutrition for sound teeth. In this connection the home economics department could lend

valuable cooperation by treating the question of foods from the health slant. These lecture would, of course, have to be augmented by an intensive follow-up work. Finally, the economic aspect commands attention. Many pupils would have their teeth attended to, but the present economic depression makes it impossible for them to do so. We must see that this large number of dental defects, which is a blot on our achievement in health work, is given immediate attention. If we must economize, let us not do so at the expense of the physical welfare of our students.

12. Corrective work. We are fortunate in having the physical facilities for carrying on this work: two gymnasiums and corrective apparatus. Considerable work has been done with the girls, but with the boys practically nothing has been attempted on account of the lack of teaching personnel. After adolescence little can be accomplished in remedial work since the bones have then assumed their final shapes. If we allow these pupils to leave us without having these deformities corrected, they will, in all probability, go through life thus handicapped. We must modify the programs of these pupils so that they can have one period of corrective work daily. Whatever school work they might miss on account of such arrangement can be made up later on. If we measure school subjects in terms of relative values, then the correction of orthopedic defects stands out as being paramount and often fundamental to other achievement.

C. TO CENTRALIZE THE ORGANIZATION AND ADMINISTRATION OF THE SCHOOL HEALTH PROGRAM. No one person, nor any specialized

group of people, such as the school physicians, school nurses, physical education teachers, or domestic science teachers can develop an effective program for the health of the entire school unless all the faculty are interested in the program. The natural person to put such program into practice is the principal of the school. In schools where health work stands out as being an undertaking worth while and in actual operation, the principal is conspicuously identified with the program. It is he who lends the necessary support and guidance. Only through a health council, properly directed, can many of the measures indicated in the previous discussion be given the concerted attention necessary to improve or to eradicate them.

D. TO ACT AS A CLEARING HOUSE FOR ALL SCHOOL AND COMMUNITY HEALTH PROJECTS. During the school year several community health projects, such as vaccination, the Shick-test, and the proposed Chadwick tuberculosis clinic are undertaken. The success of a 100 per cent achievement in these projects can be more easily secured if all members of the health council are impressed with their importance. And 100 per cent achievement in such projects is absolutely necessary! (It was by such cooperation of all community agencies in Holyoke last year that we were able to attain the remarkable record of only one death of diphtheria in the entire city.) The high school should take part in all community health activities. In such school health projects, as for example, better teeth, the health council can lend impetus to the movement by acting as a clearing house for all parties concerned.

E. TO SECURE A MORE EFFICIENT COOPERATION OF THE HOME AND THE SCHOOL IN HEALTH MATTERS. The school nurse is the link which binds the home and school together in health matters. At times, however, the school nurse cannot succeed in securing the necessary cooperation of parents. Such cases of failure can be placed before the health council, and action recommended, be it a visit of other members of the council to these parents, or more drastic or helpful procedures.

111 PERSONNEL OF THE HEALTH COUNCIL

Personnel: Principal of the high school, chairman,
Health counselor, secretary,
Director of Health and Physical Education,
School physicians,
Nurses,
Dramatics teacher,
Head of the Commercial department,
Head of the Foreign language department,
Head of the Home economics department,
Head of the History department,
Head of the Mathematics department,
Head of the Science department,
Head of the English department,
Head of the Manual training department,
Director of the lunchroom,
Janitor.

A committee of four students, representing each of the four grades: 9th 10th, 11th, and 12th.

A committee of four parents who possess a health interest in school work.

It may be well to say something concerning the representation of the janitor, students, and parents on the health council. The janitor is a powerful force in the health program. Sanitation, cleanliness, and attention to detail form a most desirable background for the functioning of any health program. As to the students, they are the ones for whom the program is planned but only too often they have no opportunity to express their opinions. Their reactions to questions coming before the council would be of inestimable value. Important, too, are the parents,- they are the ones upon whom devolves the cooperation when the boys and girls are not in session at school. They are the ones who can warn us of the pitfalls in our proposed schemes, for they have a more intimate knowledge of the students than the teachers. And, furthermore, they must be in sympathy with the propositions which we advance, or failure is evident before we commence.

UNIT IN HEALTH

Among all the subjects offered high school students there is no unit designated as a definite unit in health. It would be advisable for such a course to be added to the list as an elective subject in the 10th, 11th, or 12th grade. We speak much of the value of exploratory courses even in the secondary schools but we have neglected the health course for those pupils intending to pursue some profession or calling closely identified with some phase of the broad field of health. Several aspects of this unit course in health demand elaboration:

1. TO WHAT PUPILS WOULD SUCH A UNIT APPEAL?

Such a course would appeal to pupils who would like to become cafeteria managers, biologists, social workers, chiropractors, clergymen, teachers from elementary to college levels, dentists, dieticians, pharmacists, physicians, surgeons, girl or boy scout directors, sanitary engineers, psychologists, pschiastrists, optometrists, osteopaths, playground workers, nurses, physical education teachers, and public health officers. All these callings have a common health interest, and although they deal with health in some specific aspect, nevertheless, they can use a broad knowledge of health as an admirable background. To be explicit, the dentist of yesterday was concerning primarily with the remedial aspect of dentistry, the filling of cavities caused by dental decay, but the dentist of to-day is concerned also with the preventive aspect which implies a knowledge of nutrition as a means of preventing dental decay. Then, too, pupils who do not intend to be engaged in professions associated with health might desire to enroll in this course for their own personal benefit.

2. PURPOSE OF THE UNIT IN HEALTH

The purpose of a course in health is two-fold: first, to offer the pupil sufficient exploratory material so that he might be able to find himself if he were inclined to follow any of the callings identified with health; and second, to develop leaders for community health work. We say that education is life and that the school should approximate as closely as possible the actual conditions of life, itself, Now the secondary school is a place

to train and to develop leaders. What a glorious opportunity would be afforded our budding health workers to gain valuable experience in real life situations which abound in the high school! Take, for example, the proposed Chadwick clinic. The future physician can see the application of the Von Pirquet test; he may even be allowed to witness the taking of X-Ray pictures; he can derive inspiration from the members of the clinic; and he can assist in the follow-up work involving his classmates. Likewise, the other members of the class in health could be given opportunity actually to work in the respective fields which they wish to pursue, such as day nurseries, and well baby clinics.

3. STRESS ON COMMUNITY HEALTH

The senior high school course in health would stress the community phase. It would concern itself with such important topics as the control of disease, communicable diseases, organic diseases, industrial and occupational health, the relation of insects to disease, sewage and garbage disposal, source and care of the water supply, a study of where the milk for use in Holyoke comes from, hospital facilities for contagious and non-contagious diseases, and vital statistics.

The methods of instruction employed would divide themselves into three distinct procedures: a consideration of the general subject matter; class visits to city departments and industrial concerns which are associated with specific contributions to health and health needs; and pupil initiative. The more general knowledge a pupil possesses in regard to the broad field of health, the more successful he will be in understanding and appreciating

his own particular specialty which he intends to pursue. Visits to different agencies catering to health needs, such as a visit to a large milk dispensing concern, for example, furnish first hand information in such manner as cannot be acquired as well by any other means. Pupil initiative is probably an ambitious procedure to propose, but it is most useful in developing in the student the ability to conduct investigations on his own accord.

4. MENTAL HEALTH

Here is a field which offers unlimited possibilities. "The scientific study of psychology and of mental health, diseases and defects, has proceeded with relative slowness until very recent years. Yet even to-day the factors upon which mental health depends, or which cause mental disease, are less understood than those that affect the health of the physical organism." (1) Such topics as the following would present themselves: the relation of the mind to the body; the effect of activity, fatigue, and sleep on the nervous system; the effect of alcohol, tobacco, and drugs on the nervous system; and education for self-control and self-direction. Pupils should be made to realize the significance of curricular and extra-curricular activities such as athletic, dramatics, public speaking, student organizations, and the various clubs from the standpoint of increased mental health.

5. PHYSIOLOGY

The emphasis on the teaching of health is again swinging back to the point where a reasonable understanding of the functions

---

(1) Jean Broadhurst and Marion O. Lerrigo, Health Horizons, Silver, Burdett and Company, N.Y. 1931, p.427

of the human body is desirable. And it should rightly do so. Just as a driver of an automobile can give his car more capable attention if he is conversant with its various parts, their workings, and their interrelations, so can a person give his body more intelligent care if he knows fundamental principles of its construction and the functions of its parts. No more wonderful machine than man has ever been created! And yet, how little do we strive to teach even the elementary facts concerning it! Such subjects as chemistry, physics, and biology could be more vitalized if they were closely tied up with physiology. Conversely, physiology would be made more meaningful if it could draw from the sciences that information necessary for its understanding. Physiology presupposes a knowledge of anatomy. I am in favor of teaching anatomy in that amount and in that fashion as is necessary to make physiology understandable. I do not advocate wholesale memorization of bones, muscles, and the nerves, for the mere sake of being able to repeat names.

6. NUTRITION

The Department of Household Arts offers several courses in nutrition. In this health unit the subject of foods cannot be treated in detail, but various health aspects can be stressed such as the relation of foods to general well-being, their relative values, their requisite for growth and development, and their selection in regard to a harmonious functioning of digestion. Students who express a desire to specialize in foods would be advised to pursue courses in nutrition already offered them.

7. SOCIAL PROBLEMS

If the high school unit of health is to stress the community aspect, it cannot escape the numerous problems of society with which it is intimately concerned. Take, for instance, welfare work. Is not the main objective of welfare work to attend to the needs of the less fortunate,- to see that they have the necessities for bodily welfare so that they may not become victims of greater misfortune: loss of self-respect and anti-social mindedness? Take the momentous question of prohibition! Is not the one way out through education? And what of our present economic problem which is demanding solution! It, too, has an important phase,- the health phase. Would not a knowledge of the wise selection of foods in regard to values and prices be of inestimable importance to millions of families? Let our students discuss pressing problems! Exigencies such as these call for leaders! Where have we a better opportunity to find them than in the high school where the students have already demonstrated their ability to outlast others in the "survival of the fittest"? I repeat, all great public questions have some aspect bearing on the welfare of the people, which is just another way of giving expression to the ever present motive of health.

8. SCIENTIFIC BACKGROUND FOR HEALTH

Just as health cannot be divorced from social and economic problems, so it cannot disregard the past history of the race. Superstition has always played an active role in the conduct of man. At the present time, we have not entirely escaped from its throes. The need for scientific information is still apparent.

Part of the unit in health would concern itself directly with prevalent superstitions that have the history of the race on their side but which cannot stand up in the face of scientific evidence. This section of the unit would be intensely interesting to the pupils, for they would be alert to discover popular theories on health questions, which, despite their lack of scientific affirmation, are accepted unquestioned by the rank and file. Moreover, it would invite them to take inventory of their own conceptions of health practices.

* * * * *

AFTERWORD: HEALTH AND THE DEPRESSION

In the present critical time when education is called upon to justify its procedures in terms of real worth to society, we must consider everything that we do in regard to present and ultimate values. What can we say of the health work in the Holyoke High School? In the main, the health habits of the high school students, as a group, are satisfactory. However, shall we rest content and allow things to move on in the same routine as they are doing now? Certainly, this study shows much that must be done! We must increase our efforts to eradicate all the objectionable health habits which a small minority of our high school pupils still possess. Then, again, we must create an interest, an active interest in health, by the creation of the Health Council, which requires for its attainment of the numerous goals proposed, the whole-hearted cooperation of both teachers and pupils. And, finally, we must offer a unit of health for those students who later on will be engaged in health work: to

prepare them for leadership; and to give them opportunity to do some real constructive work with the student body, "right here and now".

If the cry for economy strikes at the root of our endeavors in health work, let us say that the neglect of caring for the health of those who now enjoy it and the postponement of remedial defects by the more unfortunate students who do not enjoy it in its fullest measure is not economy but a violation of the rights and guarantees which are synonymous with our country! Let us ever remember and keep for our guide the famous utterance of Lord Beaconsfield, "The public health of the nation is the foundation upon which rest the happiness and security of a nation!"

BIBLIOGRAPHY

Administrative Bulletin, University High School, Oakland, Calif. 1931-1932

Andress, Aldinger, and Goldberger, Health Essentials, Ginn and Co., N.Y. 1928

Annual Report of the Public Schools, Holyoke, Massachusetts, Volume 67, Year 1930

Briggs, Thomas S., The Junior High School, Houghton Mifflin Co., N.Y., 1920

Broadhurst, Jean, and Lerrigo, Marion O., Health Horizons, Silver, Burdett and Company, N.Y. 1931

Brooks, Fowler D., The Psychology of Adolescence, Houghton Mifflin Company, N.Y. 1929

Burton, William H., The Nature and Direction of Learning, D. Appleton and Company, N.Y., 1929

Emery, Julia, How 500 Students Live, in the Journal of Health and Physical Education, Vol. 11, September, 1931, No. 7, pp.27-29

Hall, G. Stanley, Adolescence, Its Psychology, D. Appleton and Company, 1904

Health Education, A Program for Public Schools and Teacher Training Institutions, Revised Edition. Report of the Joint Committee on Health Problems in Education of the National Educational Association and the American Medical Association. 525 West 120th St., New York City, 1930

Holt, L. Emett, Foods, Health, and Growth, The Macmillan Company, N.Y., 1927

Huxley, Thomas H., Science and Education, Doubleday and Company, N.Y. 1894

Johnson, H.M., Is Sleep a Vicious Habit?, Harpers Magazine, Nov., 1928, Vol. 157

Mort, Paul R., The Individual Pupil, American Book Company, N.Y., 1928

Moss, Fred A., Do We Sleep Too Much?, Literary Digest, September 19th, 1925

Report of the Survey of the Schools of Holyoke, Massachusetts, 1930 Made by the Institute of Educational Research, Division of Field Studies, Teachers' College, Columbia University. (George D. Strayer, Director, and N.L. Englehardt, Associate Director)

Terman, Lewis M., The Hygiene of the School Child, Houghton, Mifflin Compnay, N.Y. 1914

Thackston, John A. and Thackston, James F., Human Health, Henry Holt and Company, N.Y. 1931

Tyler, John M., Growth and Education, Houghton Mifflin Company, N. Y. 1907

White House Conference, Washington D.C., 1930

Williams, Jesse F., Healthful Living, The Macmillan Company, N.Y., 1930

Williams, Jesse F., Personal Hygiene Applied, Revised Edition, W.B. Saunders Company, Philadelphia, 1925

Wilson, Guy M., and Hoke, Kremer J., How To Measure, The Macmillan Company, N.Y., 1929